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JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

Volume 18 Number 2

February, 1961

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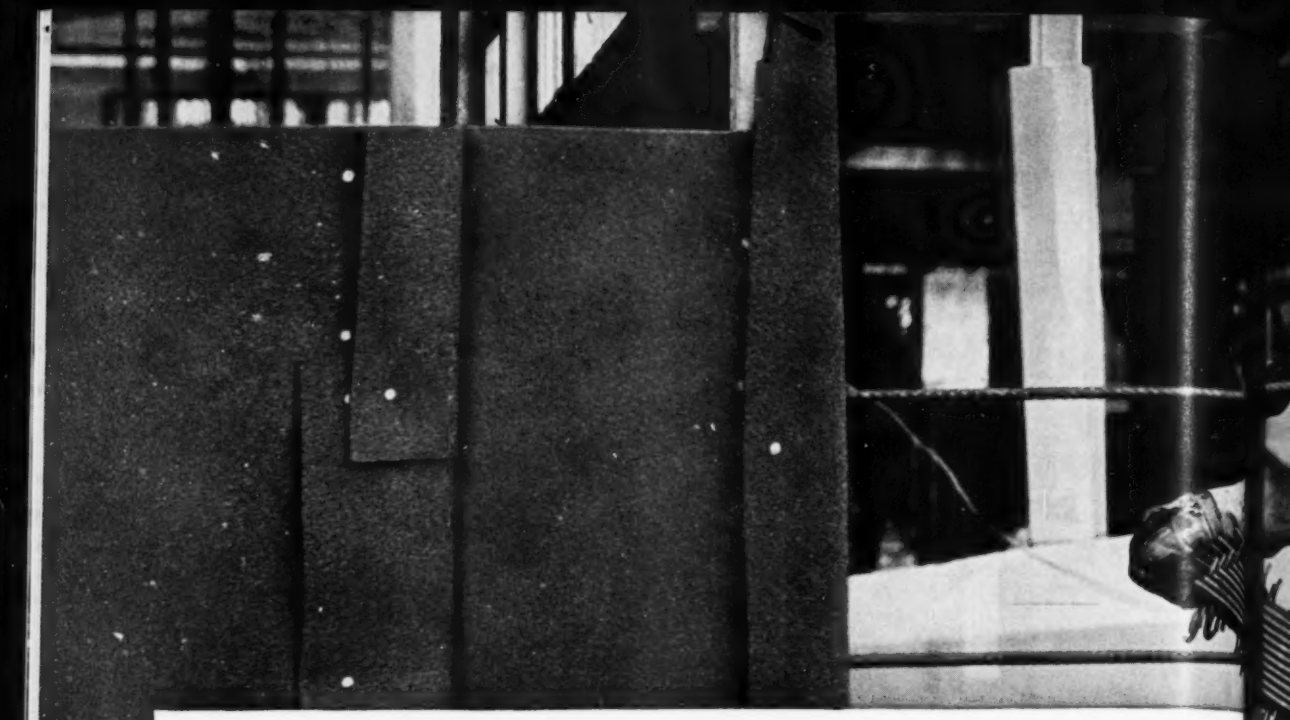
APRIL 26, 27, 28, 29, 1961



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Arizona Medicine

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

February, 1961 Vol. 18, No. 2

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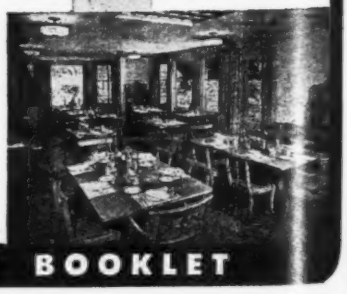


WRITE FOR OUR ILLUSTRATED BOOKLET

Arizona Medical Association Reports

Arizona Medicine

Vol. 18, No. 2 February, 1961

Professional Liaison Committee

Meeting of the Professional Liaison Committee of The Arizona Medical Association, Inc. held Sunday, November 13, 1960, Noel G. Smith, M.D., Chairman, presiding.

SUBCOMMITTEE REPORTS

Allied Professions

Robert H. Cummings, M.D., Chairman, subcommittee on Allied Professions, presented for the Professional Liaison Committee's review and approval, the proposed composition of membership of the subcommittee, consisting of Doctors Reed D. Shupe, Noel G. Smith, Marcus Westervelt, George Fraser and Robert H. Cummings, Chairman.

The Professional Liaison Committee regularly moved and carried the approval of the composite membership of the subcommittee on Allied Professions.

Arizona Osteopathic Society of Physicians and Surgeons

Robert H. Cummings, M.D., Chairman, subcommittee on Allied Professions, indicated that opportunity for a liaison meeting with the Arizona Osteopathic Society of Physicians and Surgeons had not been presented to date. It was recommended that the full Professional Liaison Committee attend any initial meetings with the doctors of osteopathy in the State of Arizona, towards liaison on problems of mutual concern.

AMA Committee to Study the Relationships of Medicine with Allied Health Professions and Services – Final Report

The Committee received the final report of AMA's Committee to Study the Relationships of Medicine with Allied Health Professions and Services, and will delineate its thoughts and recommendations at the next meeting of the Professional Liaison Committee.

Arizona Education Association

The Committee determined that George Fraser, M.D. of Tucson should contact Mr. Ellsworth A. Moe, Executive Secretary, Tucson Education Association in Tucson, and that Robert H. Cummings, M.D., Chairman, subcommittee on Allied Professions would contact Mr. Dix Price, Executive Secretary, Arizona Education Association, regarding liaison on problems of mutual concern between representatives of ARMA and the Arizona Education Association. It is anticipated that a report will be forthcoming following such visitations.

Tucson Public Schools — Sixth Annual Meeting — The American College of Sports Medicine

The Committee reviewed a letter from Lindsay E. Beaton, M.D., President, ARMA, to Mr. John L. Barringer, Director, Health, Physical Education and Recreation Department, Tucson Public Schools, Education Center, 1010 East Tenth Street, Tucson, Arizona, having reference to the transactions of the Sixth Annual Meeting of the American College of Sports Medicine, and anticipating interest and cooperation with the public schools in the advancement of sports and athletics, on a proper medical and educational level.

It was determined that such information be forwarded to Doctor Hugh H. Smith, a member of the subcommittee on Public and School Health, requesting contact with Mr. Barringer and subsequent report to the Committee.

It was moved by Doctor Payne, seconded by Doctor Wagner and unanimously carried that the report of Robert H. Cummings, M.D., Chairman of the subcommittee on Allied Professions, be accepted, together with its recommendations.

CAREERS AND ARIZONA AMEF

"Career Nights" Program

Albert G. Wagner, M.D., Chairman of the subcommittee on Careers and Arizona AMEF, presented his report and recommendations to the Professional Liaison Committee, appertaining to the subject of "Career Nights" programs, not only in the universities in Arizona, but all institutions of higher learning and high schools and submitted a format of procedure.

It was determined that Doctor Wagner would contact the (Association) District Directors for assistance in designing community representatives (doctors of medicine) to aid in development and activation of the "Career Nights" program.

It was moved by Doctor Frissell, seconded by Doctor Payne and unanimously carried that we accept the format for "Career Nights" programs as presented by Doctor Wagner.

AMA Resolution No. 41

The Committee received Resolution No. 41 from the AMA, encouraging medicine's story to high schools to increase qualified students applying for a medical education.

It was moved by Doctor Wagner, seconded by Doctor Payne and unanimously carried that we accept and adopt the resolution of the American Medical Association.

AMA Resolution No. 2

The Committee reviewed Resolution No. 2 of AMA with reference to a statement of policies of the National Foundation.

It was moved by Doctor Cummings, seconded by Doctor Wagner and unanimously carried that this item of business be referred to Lavern D. Sprague, M.D., Chairman of the subcommittee on Physicians and Surgeons for clarification, with particular interest in the scholarship program as presented therein, and with the request that Doctor Sprague file a report of the investigation of this matter with the Committee.

AMA Report — Future Shortage of Physicians

The subcommittee was not in position to report on this item of business at this time, and it was deferred to the next meeting of the Professional Liaison Committee.

Society for Academic Achievement in Community High Schools

The subcommittee was not in position to report on this item of business at this time, and it was deferred to the next meeting of the Professional Liaison Committee.

It was moved by Doctor Frissell, seconded by Doctor Cummings and unanimously carried that we accept the report and recommendations of the subcommittee on Careers and Arizona AMEF and commend the committee for its excellent report.

GOVERNMENTAL MEDICAL STAFFS

Resolution — Medical and Chirurgical Faculty of the State of Maryland

The Committee reviewed the resolution of the Medical and Chirurgical Faculty of the State of Maryland regarding the problem of expansion of Veterans Administration Hospitals into the field of non-service-connected disabilities, and further reviewed Resolution No. 10 adopted by The Arizona Medical Association, Inc., by its House of Delegates in meeting held May 4, 1960 on the subject of Limitation of Federal Medical Care of all Veterans to Service-connected Disabilities.

It was determined that no further action was necessary in this regard.

Randolph School — Medical Advisory Board

William G. Payne, M.D., Chairman, subcommittee on Governmental Medical Staffs, reported

that none of the Arizona State supported schools have a medical advisory board constituted by such institution. The investigation of this situation continues and a report is anticipated at the next meeting of the Professional Liaison Committee. It is felt that this item of business may require legislation, since it appears that the governing bodies of these institutions are not particularly interested in adopting such regulations requiring medical advisory boards.

It was moved by Doctor Wagner, seconded by Doctor Frissell and unanimously carried that the report of the subcommittee on Governmental Medical Staffs, be accepted.

NURSES

Subcommittee on Nurses

Noel G. Smith, M.D., Chairman of the Professional Liaison Committee, presented a report received from Max Costin, M.D., Chairman, subcommittee on Nurses, following a meeting with representatives of the Federation of Licensed Practical Nurses and Doctors Max Costin and Francis Bean, on recommendation of Lindsay E. Beaton, M.D., President, The Arizona Medical Association, Inc.

"After several hours of discussion, it seems that I can summarize by saying that the areas in which L.P.N.'s feel that the physicians can be of some help are as follows: 1. At present there is no differentiation in most hospitals in the treatment of aides and L.P.N.'s, the latter having had a year of training, being licensed and part of an organization which regulates their ethics, etc. 2. The above situation makes for poor utilization of the potentials of the L.P.N.'s. Part of this lack of utilization also is due to conflicts between L.P.N.'s and R.N.'s and their area of activities. 3. At the present time licensure for practical nursing is permissive. L.P.N.'s would like us to support legislation making the licensing of L.P.N.'s mandatory in order to raise standards. 4. L.P.N.'s also are worried about possible pending legislation granting waivers of licensure over a broad area.

After this discussion, it was my opinion that any encouragement we, as physicians, can give toward a meeting of minds between R.N.'s and L.P.N.'s, as to defining work areas and allowing potentialities of many L.P.N.'s to be utilized, would probably work to the benefit of patients, hospitals and physicians. Both Dr. Bean and I have informally suggested to these leaders of the L.P.N. group that they do their utmost to meet and come to some agreement with the R.N.'s, as a first step toward their better recognition."

It was moved by Doctor Payne, seconded by Doctor Wagner and unanimously carried that we accept the report of the subcommittee on Nurses.

AMA Division of Scientific Activities
Department of Nursing

The Committee received the report of the establishment of a Department of Nursing from the AMA Division of Scientific Activities, indicating liaison being available to the constituent State Associations.

No action indicated.

ASSOCIATION OF PHYSICIANS AND SURGEONS

No report.

PUBLIC HEALTH AND SCHOOLS

Ben P. Frissell, M.D., Chairman, subcommittee on Public Health and Schools, indicated a need and a desire for a change in the name of the subcommittee, from Public Health and Schools to "PUBLIC AND SCHOOL HEALTH."

It was moved by Doctor Frissell, seconded by Doctor Cummings and unanimously carried that henceforth, the subcommittee shall be entitled, Public and School Health.

Composite Committee Membership

The Professional Liaison Committee on recommendation of Doctor Frissell, accepted the composite membership of the subcommittee on Public and School Health to be: Doctors Stanford F. Farnsworth (Phoenix); Ben P. Frissell, Chairman (Phoenix); E. Henry Running (Phoenix); Hugh H. Smith (Tucson) and Noel G. Smith (Phoenix).

Raw Milk Legislation Report

As you will recall, an attempt to correct the existing situation regarding raw milk was made in the Legislature in February, 1959. This attempt was defeated in spite of the efforts of the Medical Association, basically due to the attitude of certain people in the dairy industry, although the cause was not helped by some of our own profession. We have discussed this problem with the State Health Department, with the County Departments in Maricopa and Pima County and with one of the sponsors of the bill. The unanimous feeling appears to be that this is not the right time to reopen the effort

with respect to this piece of legislation. The Health Department people assure us that the amount of raw milk being sold in the State on a commercial level is very low and they do not feel at the present time that it poses a real Public Health problem.

Birth Control Legislation

It was noted that the proposed recommended legislation having to do with the question of Arizona Revised Statutes on the subject of birth control and the use of contraceptives, etc., had been referred by the Board of Directors of ARMA to the Legislative Committee for review and recommendation.

It was moved by Doctor Cummings, seconded by Doctor Payne and unanimously carried that the subcommittee on Public and School Health make itself available to the Legislative Committee for preparation of revision of the Arizona Revised Statutes pertaining to birth control laws.

School Health Advisory Committee

Noel G. Smith, M.D., Chairman of the Professional Liaison Committee brought to the attention of the Professional Liaison Committee, the subject of "school health requirements" prior to obtaining a teacher's certificate in Arizona schools and its anticipated deletion from their certification program.

It was determined that a letter be prepared on the subject with anticipated distribution to the Arizona State Board of Education, Arizona State Department of Public Instruction and other departments of interest, and submit it to The Arizona Medical Association for immediate recommendation, acceptance and mailing, at an early date.

It was moved by Doctor Payne, seconded by Doctor Cummings and unanimously carried that we accept the report of the subcommittee on Public and School Health, together with its recommendations contained therein.

WOMAN'S AUXILIARY

No requests for information or assistance being in hand from the Woman's Auxiliary to The Arizona Medical Association, no report was given.

Lorel A. Stapley, M.D.
Secretary
by Leslie B. Smith, M.D.
President-elect
Acting Secretary

INDUSTRIAL RELATIONS COMMITTEE — RECOMMENDATIONS

Too frequent instances of disagreement between Medical Attendants of Industrial cases and the Legal Department of the Industrial Commission makes it necessary to call to attention the proper position of both groups in handling these problems.

These disagreements have arisen principally from the fact that, inadvertently, the Medical Attendant, has, at times, extended his findings to include a finding on the question of liability. This, of course, is the sole function and prerogative of the Commission.

Simply stated the function of the Medical Attendant is to report to the Commission as to what happened to the patient medically, using such terms to best interpret the status of the patient.

Following this report it is the duty of the Legal Department to decide whether the case is a concern of the Industrial Commission of Arizona. These responsibilities do not overlap. The Legal Department may at times request further opinion of the Medical Attendant but the status of responsibility does not change.

* * *

The Industrial Relations Committee recommends the use of the diagnostic form of the American Psychiatric Association in reporting psychiatric cases. The recommended form is as follows:

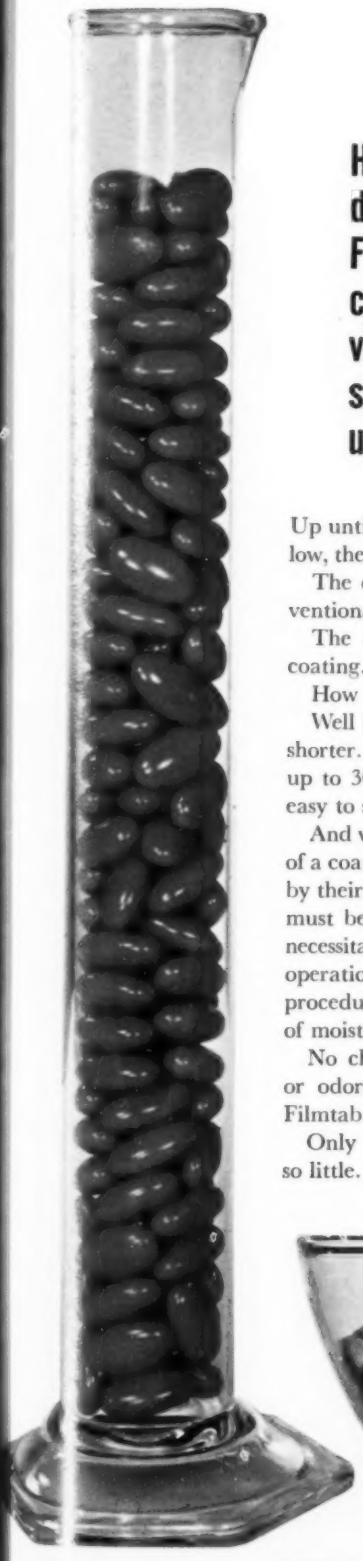
Diagnosis:

a. Predisposition

b. External Precipitating Stress

c. Degree of Incapacitation

This provides a workable, concise diagnostic outline for both the Medical and Legal Departments of the Industrial Commission to interpret.



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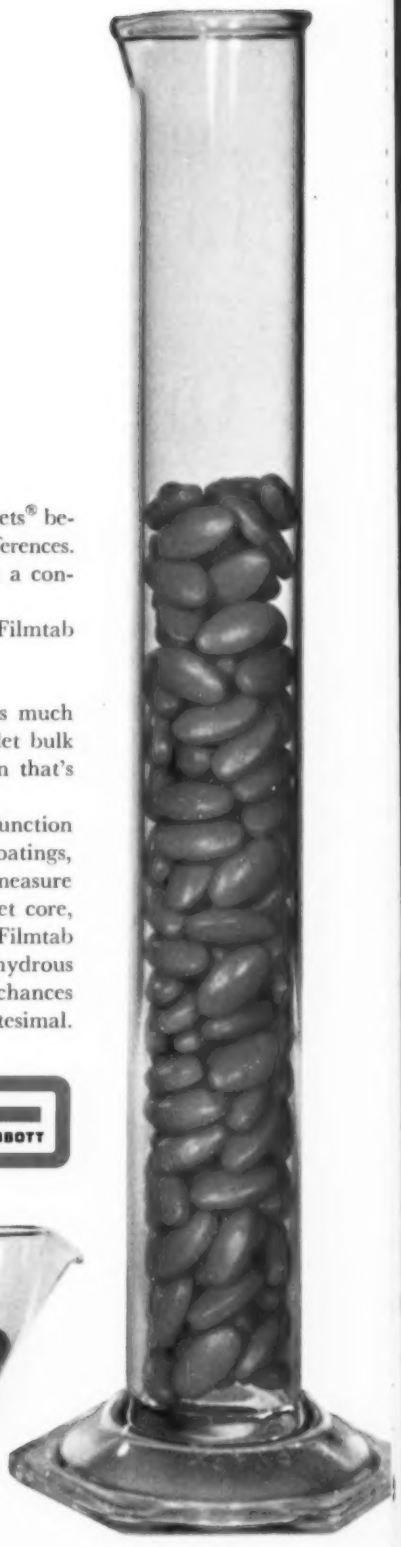

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Nicotinamide	20 mg.
Pyridoxine Hydrochloride	0.5 mg.
Cobalamin (Vitamin B_{12})	2 mcg.
Calcium Pantothenate	5 mg.
Ascorbic Acid (C)	50 mg.
Iron (as sulfate)	10 mg.
Copper (as sulfate)	0.15 mg.
Iodine (as calcium iodate)	0.1 mg.
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Nicotinamide	25 mg.
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Magnesium (as oxide)	5 mg.
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Nicotinamide	30 mg.
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Cobalamin (Vitamin B_{12})	2 mcg.
Calcium Pantothenate	10 mg.
Ascorbic Acid	150 mg.
Desiccated Liver, N.F.	150 mg.
Liver Fraction 2, N.F.	150 mg.
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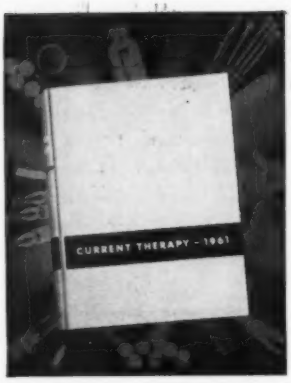

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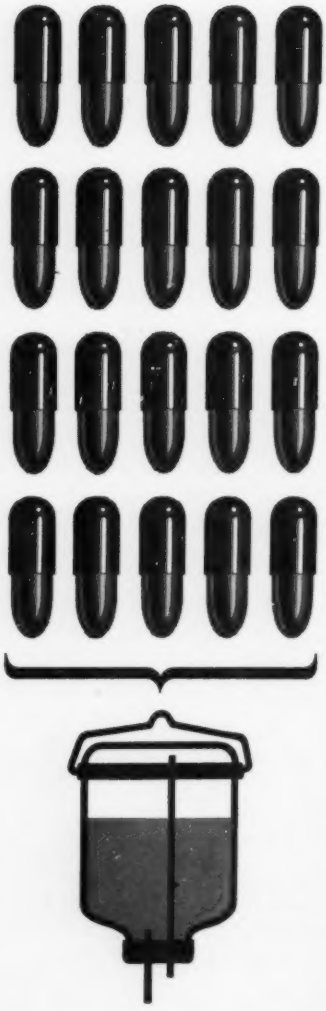

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LEDGER

Vol. 18, No. 2 February, 1961

Griseofulvin, a New Oral Treatment for Ringworm*

by

J. Walter Wilson, M.D.**

Los Angeles, California

An interesting and enthusiastic article which deals with the advantages, as well as the limitations, of the drug, Griseofulvin. Significantly pointed are the remarks concerning proper case selection for administration of Griseofulvin. (R.L.D.)

I BELIEVE Griseofulvin is destined to become one of the "miracle drugs," capable of becoming as well established in our armamentarium as penicillin was, but I think it will have to overcome some major disadvantages, the principal one being that it will not cure "everything."

I do not have color illustrations and this is not due to any lack, because I have about 2500 color illustrations of fungus diseases in one stage or another. It is because I have become convinced that the use of such pictures in a lecture of this sort will be misleading. For example, suppose I show a typical picture of a certain form of ringworm, and I succeed in implanting in your minds the picture of that disorder as it should be – and you carry that with you and you see a case which presents the same sort of lesions – and you say, "This is ringworm, therefore, let's treat it as such." Fifty per cent of the time, at least, you will be wrong, because it is impossible to differentiate fungus diseases from non-fungus diseases by visual means alone. If you can learn to tell the difference between the herald spot of pityriasis rosea and a single spot of ringworm, you are a better clinician than I.

It has been my very good fortune to have had experience and training under three dermatologists whom I consider deserve to be rated among the best clinicians in the world who freely admitted that it is impossible to differentiate fungus diseases from non-fungus diseases by clinical appearance alone.

And here, very early in this talk I usually lose part of my audience, apparently because I have to say that a microscopic examination of a bit of tissue from the edge of a suspected lesion is almost a necessity. And many listeners think, "That's too difficult for me," so they cease to be interested in anything further that I have to say. This examination is not difficult. It is one of the simplest of procedures and can be done in a matter of 40 seconds. A tiny bit of tissue can be taken from the edge of the lesion while you are inpecting it. It takes no more time to have in your hands a small instrument, a No. 15 blade on a Bard-Parker knife, and take a small piece

*Prepared for oral delivery before the Arizona Chapter, American Academy of General Practice, Scottsdale, October 17, 1959.
**Clinical Professor of Medicine (Dermatology) University of Southern California School of Medicine.

about as big as the end of a kitchen match. Give it to a nurse if you wish and have her put it with a drop of potassium hydroxide on a slide, put on a cover slip, warm it for about 10 to 15 seconds, press it down and call you to the microscope to see whether it has fungi or not. You can do it after you get to the microscope in about 10 to 15 seconds.

And I think to use this new medicine, Griseofulvin, a technique such as this is almost a necessity. Griseofulvin has a little bit of anti-inflammatory activity, so I suppose it will help to a small extent a number of non-fungal inflammatory disorders, not only of the skin but elsewhere, just as aspirin helps inflammation to a certain extent. It also has a little anti-mitotic activity such as similar to but not nearly as efficient as, for instance, colchicine or podophyllin, so I suppose it will even make some neoplastic disorders decrease a little in size but not efficiently enough for this to become a satisfactory treatment for those disorders. So that if this medicine is going to acquire any fame, it's got to rise above the fact that all too often it's going to be used in non-fungal disorders which it has no chance to cure in the first place, thereby discourging both patient and doctor. It's too expensive to try simply as a trial – such as, "Let's see if two weeks of it will cure or will help?" Well, two weeks of Griseofulvin at the proper dosage will cost about 18 to 20 dollars, a little too much for many disorders which could be cured with two-and-one-half dollars worth of other properly selected medicaments.

The development of a new drug like this makes a very interesting story, and I'm very happy to have had a little interest in it a long time ago. In about 1939 it was realized that the medical profession possessed a very efficient and relatively safe drug in the form of penicillin. The only thing wrong with penicillin in those days was that it was too expensive; it was hard to make, a gallon of medium manufactured only a few milligrams of penicillin; and it was realized that if this source had to be relied upon, penicillin was not going to be available in adequate supply. And so the bacteriologists and mycologists started very diligently looking for other sources of penicillin, that is, for other species of Penicillium, which might produce it in larger quantity per gallon of medium. And they did find one, particularly, which did a marvelous job furnishing almost a hundred times the yield of penicillin.

But while they were making this search, of course, they had to culture a lot of different Penicillia and extract them and find the active principles that were produced; and they found a few dozen materials, which they tested against bacteria which proved to be not successful or not efficient enough. They simply labeled these and put them on the shelves for future reference. P. W. Brian in Britain in the '40's began to look through all of this collection to see if he could find subtsances which were useful in agriculture, particularly against some of the fungus diseases that involved tomatoes and other forms of produce. And he came upon this particular one which concerns us today, Griseofulvin. He found that when this material was sprayed upon the fungus which causes a certain kind of mildew on tomato vines that it inhibited the advancement of the fungus. It did not kill it, but it caused the advancing filaments of the tiny plant to shrivel and coil up. He called this the "curling" factor. And to this day this is the picture that I want to leave in your minds of the activities and the action of Griseofulvin. It does not kill the fungus, it simply forms an invisible wall through which the fungus doesn't penetrate. It blunts the advancing tip just like a solid substance would blunt the advancing tip of a hypodermic needle or bend it out to the side and start it to curling.

This interesting subtsance was used in agriculture experimentally on small tracts of land, because it was too expensive and the quantity too limited to be used as an efficient help for the farmer on a large scale. But James C. Gentles of Glasgow, Scotland began also to work with it in animal experimentations, and he found that, when given to guinea pigs that were infected with superficial fungi, Griseofulvin cleared the infection. Upon investigation he found that it cleared the fungus infections because it became deposited in the newly-formed cells of the epidermis and of the hairs in such a manner that it grew outward as these cells grow outward to be eventually shed and to push the fungus away.

Now I, among others, long ago pointed out that if a fungus is going to keep its job as an infecting agent on an animal, it must work at it. It must grow downward into the follicle and inward below the nails at a speed at least equal to the outgrowth of the nails and hair, because our bodies are continually producing new skin, hair and nail cells to replace the wear and tear at the periphery; and these form a continuous layer all over the surface of the body. And these cells are always moving outward at a certain speed regulated by the rate at which this activity at the basal cell layer takes place. I called this the "epidermal effluvial current". The outflow of keratin and cells which produce keratin is thus a continuous process from within outward. It varies a little in speed according to individual patients, but it is always there. If a fungus were to slow down sufficiently in its growing activities, it would be pushed completely off of the human body. It would be pushed off of a thin area of skin like the back of the hand in perhaps 10 days. It would be pushed out of a hair follicle in perhaps 15 to 20 days. It would be pushed completely away from a nail bed in about 4½ to 6 months. But it would eventually be pushed completely away if it stopped its ingrowth.

Therefore, anything which slows down the ability of a fungus to grow inward would help to cure a fungus disease of this type, and anything which could be laid down as a layer when the new keratin materials were formed and which persisted in its ability to repress the advances of fungi as it grew outward could produce a cure. And that is the mechanism of Griseofulvin.

In 1955, in Los Angeles, there was the First International Congress on the Treatment of Fungus Diseases. And famous mycologists came from India, the Philippines, Australia, all the countries of South America, from England, France, Germany, even from Czechoslovakia. One of the tasks which was assigned to me as one of the organizers was to prepare a short chapter entitled "The Possible Approaches to the Treatment of Fungus Disease," and in the first paragraphs I stated that "the ideal treatment for fungus disease would be to find the ideal fungicide. The ideal fungicide should have the following attributes: it should be colorless and odorless and tasteless and soluble in all body fluids and adminstratable by mouth in amounts which could provide all the body cells of the human body with the ability to resist all pathogenic fungi wherever they were located. It should be absolutely non-toxic to human beings." I also said that "the ideal treatment for even the superficial fungus infections would be a drug which could be taken by mouth and then be contributed into the keratin as it is formed by the hair and nails and persist in being able to repress the activities of a fungus as the keratin grew outward to push the fungus eventually off the human body." In the next sentence I stated that "this would require a collection of fortuitous events such as no serious scientist expects to see happen in the near future."

Dr. James C. Gentles of Glasgow, Scotland selected the first paragraph and left out the last paragraph, and thus quoted me as having predicted Griseofulvin. They say that among all medical papers the best are the shortest, and Dr. Gentles' paper is only two small pages. It was the most exciting thing that has happened in the field of fungus infections in 50 years.

I got some material from Dr. Gentles almost a year ago, and we started to experiment with Griseofulvin. It has long been realized and emphasized by many that the principal reason we could not cure superficial fungus infections with ease was the fact that no one had devised a chemical or a carrier vehicle which could be caused to penetrate as deeply into the keratinized structures of the human body, the skin, hair and nails, as the fungi can penetrate in their normal parasitic activity. When we consider that a nail which looks to be involved by inspection half way from the peripheral tip to the base can be shown to have fungi within 1 mm. of the place where this nail begins to originate, we realize the depth of penetration of this fungus, and the impossibility of making any medicines penetrate deep enough through that solidified material to kill the advancing tips of the fungus. All that could be done would be to hinder the parent stock of the fungus somewhat in the manner that bombing the home front can deter a little bit the advancing army because of failure of food supply or something of that sort.

Previously we were faced with several skin disorders caused by fungi, notably certain forms of ringworm of the scalp and of the feet and nails which for all practical purposes were absolutely incurable. Before the advent of Griseofulvin I've said many times that if and when I could qualify as a specialist in fungus diseases, I would be a specialist in a useless field, because while I was capable of making the diagnosis beyond a shadow of a doubt, I had then to tell the patient, "Now that I know what is the matter with you, I can't do anything for you except to tell you not to spend hundreds of dollars every year on salves or paints which can't cure you." However, now we have a method of approach. I want to emphasize again the fact that it is not possible to differentiate fungus from non-fungus diseases by external examination alone. Not over 30% of all sore feet are due to fungus; of scalp disorders, not over 30% in children and 10 or 15% in adults are due to fungus. Fungal diseases are rather rare percentage-wise compared to other ailments, and I believe that before Griseofluvin is used, at least a potassium hydroxide direct microscopic search for the presence of fungi should be made. This is extremely easy, and I wish it could be more popularized. In my experience it takes much less time to perform than it does for me to talk enough to convince my patients that I'm so good at diagnosis that I don't have to use the laboratory.

Griseofulvin is now available all over the world, and in reasonably good supply. It comes in 250 mg. tablets, and the standard dosage so far is four of these 250 mg. tablets daily for an average sized adult somewhere in the neighborhood of 140 to 150 pounds. We have been trying all year to find dosage schedules which would match this drug against certain diseases and give us more definite instructions as to its use, and we are still unable to answer some of the questions which come up. First, we have been extremely interested in finding whether or not a smaller dosage would be efficient, because a moment's calculation will show that if we treated a person with ringworm of the nails continuously for six or eight consecutive months (which might be necessary to make nails grow out completely normal since it takes that long for nails to grow from the point of production to the tip), it would cost the patient from $150 to $200. And if as we suspect, to keep him from being re-infected, we might still have to continue giving him the drug in the manner of insulin for diabetes, and he would be faced with the fact that to keep his nails clear would cost about $600 a year. And in my practice, the majority of my patients I believe would say, "This is the difference between my driving a car or not, and I think I would rather ride in an automobile than to cure my nails." And so I think we will have to consider this drug as something less than a wonderful victory unless we can find a lower cost method. Eventually the cost of the drug may come down, but right now it is between 20c and 25c a tablet, which means something in the nature of .80c to $1.00 a day. It's a little too expensive, therefore, for just a therapeutic trial, to look at a rash and say, "Well, let's see if Griseofulvin will cure it." This is feasible with things like penicillin or tetracycline, because four days or so usually will tell you whether it is going to work or not. With Griseofulvin it takes several weeks, or with some diseases, one, two, three or as much as six months.

Fungus infections fall in two great categories, the superficial and the deep ones. There are eight clinical syndromes caused by fungi which can cause death of the patient. Coccidioides is the one with which most of you are most familiar, histoplasmosis being the second; and then nocardiosis, actinomycosis, sporotrichosis, cryptococcosis, the two blastomycoses, and chromoblastemycosis. This drug is not efficient for any of these disorders with the possible exception of nocardiosis, and that seems even a little doubtful at the present time. So it is not the panacea for all fungus disease. It has absolutely no effect on any fungus which has another method of reproduction other than the advancement of the thread-like tip of a hypha. If a fungus has another method of reproduction in tissues, such as the formation of a mother cell with endospores within it as in coccidioidomycosis, if it can produce buds like blastopores, then this drug does not affect it at all. The fungus goes on with its work, simply falling back on its ability to reproduce in a way that this drug has no effect upon. This drug only acts because it blunts the tips of advancing filaments. The

most important point is that it has absolutely no helpful effect upon moniliasis, and moniliasis is a rather common superficial fungus disease in toes, groins, rectal area, around the mouth and especially in the mouth of the newborn. It is probably going to be demonstrated that it, like tetracycline and other drugs of similar ilk, actually has a harmful effect and will make moniliaisis worse.

We use culture methods as well as microscopic methods. It takes only a fraction of a minute to implant a culture which at times will reveal monilia where I thought there was a different fungus. Thus, even if I had given the patient some Griseofulvin at first, about four days later I can say discontinue it, knowing that it will do no good.

There is another skin disorder, tinea versicolor, which consists of differences in the scaling and pigmentation of some areas of the trunk of certain individuals. It is never painful, itchy, nor inflammatory, but looks bad. Griseofulvin will not benefit it. We have had several patients who have two types of fungus infection, one which can be cured with this drug, and tinea versicolor, and we have cured the one completely while the tinea versicolor remains uninfluenced. So Griseofulvin is not a panacea for all fungus infections. It has to be used for those which it can help, and I believe it should be omitted from the schedules for the persons who possess disorders which it does not have a chance to help.

Thus far Griseofulvin has been non-toxic. Maybe that's just a little too flat a statement because we have ourselves observed two cases of morbilliform rashes which proved to be due to Griseofulvin, clearing after the drug was stopped and recurring when the drug was given again. Both of these patients thought that this eruption was more troublesome than their fungus infection and stopped the drug. In a series of almost a hundred and fifty which we have had, the only other patient who stopped the drug was one who got headaches from taking the drug. We have had two or three other people complain of headache particularly during the first few days of administration, but who were able to continue the dosage. We have had two or three people complain a little of upset stomach and nausea and one who said it caused a diarrhea for several days, neither of whom had to stop the dosage. However, I can remember very vividly in 1937 when I talked to various hospital staffs on the sulfonamides which were then new and the chemistry of them, five or six sulfonamides of different chemical structure which had different effect, principally because these solubilities made them concentrate in certain parts of the body. Some stayed in the gut, and some went to the kidney, and some went to the central nervous system, etc. This is unimportant except that I remember very well the statement that I made in those talks in 1937 and which was then generally believed. . . . "If you want to use sulfonamides, go ahead, they're harmless." I can remember also equally well in 1942 when we first used penicillin how innocuous penicillin was supposed to be. These statements you all know would be very silly at this time because we have hundreds of examples of harmfulness from both of these materials, some of them very serious. It has been estimated that there have been at least a thousand deaths caused directly in the United States by penicillin. Penicillin is losing its effectiveness and becoming more and more dangerous.

Very early in the study of a new drug its chemical, poisonous toxic effects become realized, so I think that even now with a year's experience we can say Griseofulvin is not a potent "chemical poison" from a basically poisonous standpoint. However, what take a much longer time to show up are the allergic manifestations which can be developed. Anyone can develop an allergy to anything which is touched or eaten or inhaled at any time after the first time that material contacts our body cells. This may be after the first time, the second, or only after the ninth, the 437th or perhaps the 17,953rd time that the cells contact that material. Thus, it takes a long time, even four or five years, to begin to get reports of the allergic potentialities of new drugs.

I had the very disconcerting experience of being one of the first to observe the toxic effects of asterol, which you will remember as a topical fungicide. We were using it in a clinic for tinea capitis when a small boy began to

have central nervous system convulsive seizures. After some studying of encephalograms in the hospital, it was concluded that probably he had an epileptic-form seizure, just as a certain percentage of children do have that trouble and do have convulsive seizures. It was only after he was sent back to the clinic as recovered and we began to paint the same material on his scalp again and he went through the same process again that we became aware of the fact that this medication could cause such difficulty. About the same time I gave asterol to a baby who was only three months old who started with thrush and got moniliasis all over the body. On the 12th day the baby began to have convulsions. And after sufficient study we came to the conclusion that this was caused by absorption through the skin of the medicament, asterol. At the time that these cases were reported, the paper was held in abeyance for about five months until there were two other papers from other parts of the country just to be sure that this was not a happenstance, that it was likely to be a reliable conclusion, and then all three were published in one issue of the Journal of the American Medical Association. During the next three years all such cases were added together, and only 17 were discovered in the United States. At that time the company estimated that 2,500,000 packages of this material had been sold and used on human beings to produce 17 such instances. This will illustrate the difficulties in estimating the toxicity of a drug. It takes a long time to know such long-range toxic effects. Just as sure as the sun rises tomorrow, there will eventually be toxic or allergic effects in certain individuals to Griseofulvin.

Ringworm of the superficial variety is the disorder which can be cleared or helped by Griseofulvin. And ringworms of the superficial variety can be divided best into the same divisions that you as clinicians would like to use. We simply say, "Ringworm is caused by fungi, and ringworm can be classed according to the part of the body in which it exists." So we speak of ringworm of the scalp, tinea capitis, ringworm of the beard, ringworm of the body, ringworm of the groin, ringworm of the feet and hands, and ringworm of the nails. And each one of these presents a little different picture and a little different form of treatment. Griseofulvin will clear ringworm of the scalp in children in approximately three to six weeks. Some researchers are experimenting with a single, one-day massive dose of the material, and some reports seem to indicate that we may be able to cure ringworm of the scalp by a one-day dose of 5 grams of Griseofulvin. I have not tried it yet, and I would not advise you to use it until two things have become evident. One is the possibility of toxic effects of large doses such as that, and second, an estimate of the percentage of reliability of the cure. We have been using a dosage calculated somewhat on the basis of the poundage of the patient in relation to a normal 150-pound adult and continuing it for a minimum of two weeks and in most instances for four weeks. Wherever controls are available, we continue it until we have had two negative cultures. We have long had a backlog of cases of ringworm of the scalp, particularly of the more resistant varieties, the kinds that are cause by Microsporum audouini (the type that can be transferred from patient to patient and child to child in epidemic fashion), and an ever increasing amount caused by the organism coming from Mexico, Trichophyton tonsurans (which in Los Angeles ranges now between 30- to 50% of all of our ringworm of the scalp and which does not clear spontaneously at puberty or with topical application with any great ease), for which I believe Griseofulvin is going to be extremely valuable. Our statistics are beginning to look very good, and in sufficient quantity to be significant. After administration of the drug, the hair should be clipped because the tips of the hairs still have viable fungi which could reinfect the roots.

Ringworm of the body has always been easily cleared; almost any drug will do it — sulphur and salicylic acid ointment or any of the proprietary remedies. It's not a difficult problem at all, and Griseofulvin, while efficient, will probably cost more than necessary except in extensive cases.

Ringworm of the groin has always been a problem because an effective fungicide is often irritating to the scrotum or the labia of a certain percentage of people. Griseofulvin is ideal in these cases because it has alsoblutely no irrita-

ing effect. Most of the time the patient has been using something irritating before the doctor sees the eruption, and the relief begins at once to be evident from its omission, wile Griseofulvin clears the entire disorder within 10 days.

Ringworm of the feet occurs in two types. One consists of severe, acute, hot, red, tender, swollen, macerated toes and soles. The other is the very antithesis of this and exhibits dry, scaly, thick, hyperkeratotic involvement with some reddening and some itching of the soles and perhaps the palms which can last literally for 30 to 40 years without ever clearing, only varying a little in its extent. The acute vesicular type, which most persons have had at some day in some summer, usually beginning as maceration and sweating between the 4th and 5th toe particularly, is not a chronic fungus infection in my opinion. It is a recurrent exposure to fungus under conditions in which the fungus loves to live. Griseofulvin serves very little purpose in these cases. By the time it has time to have been absorbed and to have contributed enough to the keratin, the patient can be rendered well by other means. With antiseptic soaks such as potassium permanganate, and the use of drying powers, cure can be obtained in a few days and at a cost of about $2 where he might spend $25 for Griseofulvin. I do not believe this drug has a great future in this particular place. However, for the chronic hyperkeratotic form of ringworm which can go on for years and years, Griseofulvin is the very best thing that has ever happened. It is a boon beyond compare. I have no more grateful patients than those in whom this diagnosis has been confirmed and who have had Griseofulvin.

However, there are other syndromes which can mimic this infection so that I believe it is very important, before one puts a patient on this material for several months at the expense that would be involved, to make certain that this is not just one of the hyperkeratotic disorders which has no relationship to fungus disease. I am at present still of the opinion that the person who has this particular chronic type of infection due usually to Trichophyton rubrum has it because he is immunologically defective. He is not like the rest of us. He is perhaps one in 50 out of the general population who becomes infected with this bug because he is peculiarly susceptible to it. His skin furnishes something this fungus loves, or it lacks something which all the rest of us have which this fungus hates. I believe he can even transmit this peculiar skin propensity to his children genetically. Certainly the wives or husbands of people who are infected with this disease for years and years do not acquire it very frequently, probably not more than one in 50, one in 100. If we were to rub this fungus on 100 normal people, we would probably succeed only in infecting one or two of them. Now this very fact makes me discouraged in the use of a drug of this sort, because even if I am successful in pushing all of the fungi off of his body by using this drug, I think he's a likely candidate for a reinfection. I am sure he has a sea of spores in his home, his automobile, his office; and, of if he's a traveling salesman, he has deposited spores everywhere he travels. I believe he will become reinfected right away or at least some time in the near future. So at the present time, while I still have faith that Griseofulvin will do a tremendous job, perhaps even a complete clearing, it probably cannot keep a patient from being reinfected unless he continues to take it in the same manner that we use insulin for diabetes.

This is also the exact story with ringworm of the nails. Ringworm of the nails is so difficult to treat that this is the only drug that we have ever had which is really helpful, yet I think we are going to find that most of such cases are due to Trichophyton rubrum and that we have to use the drug at intervals throughout the patient's life in order to keep him from being reinfected.

I have never been a great drug enthusiast and have written derogatorily in the past about many topical fungicides. However, I sincerely believe that Griseofulvin, exerting as it does its effect from within outward, is a great advance in our therapy and gives great promise.

About 1.3 million persons are employed in the Nation's 7,000 hospitals.

An Analysis of Staphylococcic Types In the Phoenix Area

Roy M. Johnson*

Tempe, Arizona

A report on the study of staphylococcal cultures obtained in two Phoenix hospitals over a one-year period. Typing done on basis of in vitro antibiotic resistance and the incidence of resistant "strain" appearance noted. Emphasis on good asepsis and isolation is made with the thought that new resistant strains will continue to appear even with the usage of new and different antimicrobial agents. (RLD)

STAPHYLOCOCCUS pyogenes has been of particular concern to hospitals across the world for the past several years, particularly as regards strains showing an increased resistance to antibiotics. Some hospitals have been closed and others severely limited in their operation due to an abnormally high incidence of this organism. The U. S. Department of Health, Education and Welfare has published an excellent review of this problem (1).

In keeping with the philosophy that prevention is better than cure, a co-operative study was undertaken in two Phoenix hospitals regarding the incidence and in vitro antibiotic resistance of staphylococci in these hospitals over a one-year period.

MATERIALS AND METHODS

Routine antibiotic sensitivities were made and recorded on all staphylococcal cultures received by the hospital laboratories concerned. These reports were then analyzed and segregated into antibiotic resistant types. The incidence of such types was plotted against time. The following coding system was used to designate staphylococcal types resistant to the following anti-biotics: A, aureomycin; St, dihydrostreptomycin; P, penicillin; S, triple sulfa; T, terramycin; Po, polymyxin; Te, tetracycline; E, erythromycin; C, chloromycetin.

RESULTS

In Hospital A, three type strains were found to predominate in a preliminary two-month survey. These were (AStPPoTE), (Po) and (APPoT). These types were the major types found during the rest of the year with the one addition of (AStPPoT). This group of four made up better than eighty per cent of the coagulase-positive staphylococci in the hospital. Table 1 shows the distribution of antibiotic sensitivity among 189 cultures resistant to one or more antibiotics.

TABLE I
Distribution of Antibiotic Resistance Among Staphylococci in Hospital A

Resistant to:	Number of Cultures	Per Cent of Total*
Penicillin	75	39
Terramycin	148	79
Polymyxin	143	77
Streptomycin	126	66
Aureomycin	121	64
Erythromycin	45	23
Chloromycetin	18	9

*A culture resistant to two or more antibiotics was counted in all categories.

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Figure 1 shows the percentage of penicillin sensitve staphylococci in Hospitals A and B for a ten-month period.

FIGURE 1
PERCENTAGE OF PENICILLIN SENSITIVE STAPHYLOCOCCI IN TWO HOSPITALS

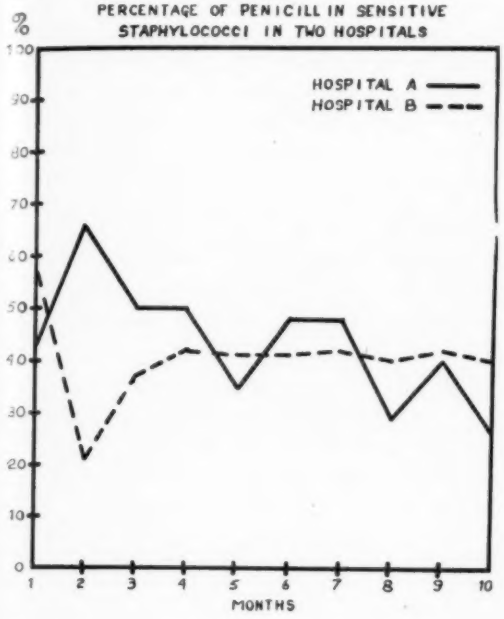
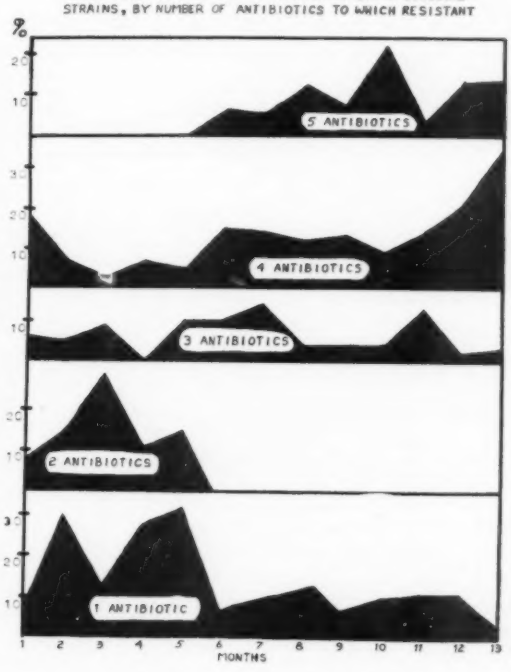
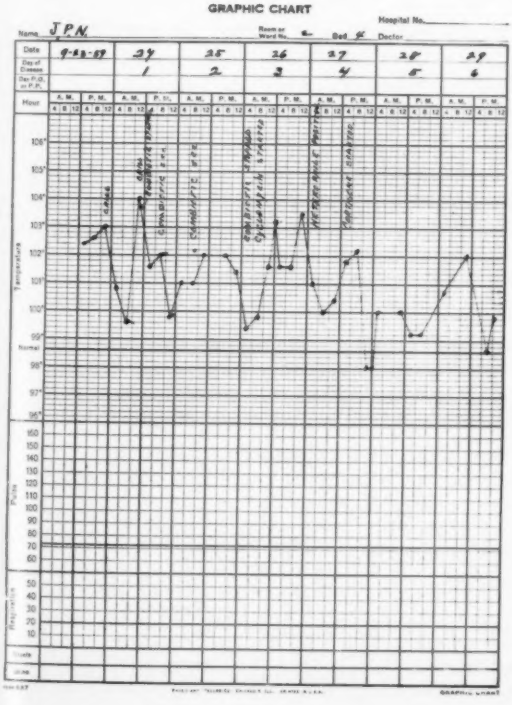
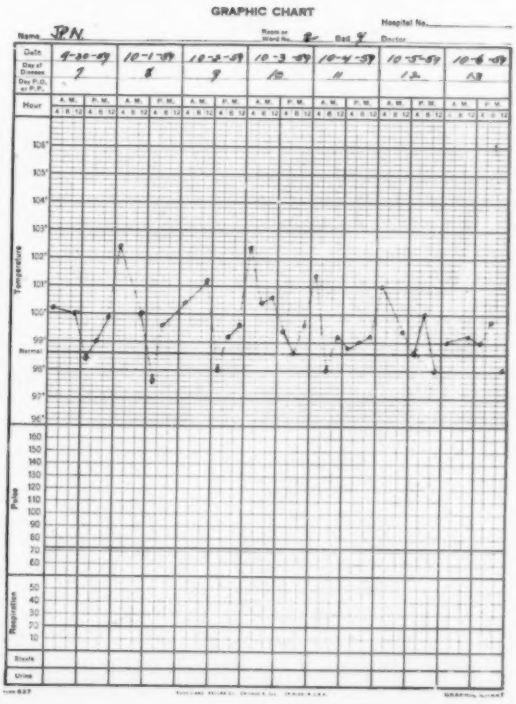


Figure 2 shows the percentage distribution of selected types in Hospital B for a thirteen-month

FIGURE 2
PERCENTAGE DISTRIBUTION OF RESISTANT STAPHYLOCOCCAL STRAINS, BY NUMBER OF ANTIBIOTICS TO WHICH RESISTANT







period. Cultures listed as one, two or three antibiotic resistant refer to penicillin, aureomycin and streptomycin singly or in combination. Four antibiotics is the addition of tetracyline to the former three, and five antibiotics is the addition of erythromycin to the previous four.

DISCUSSION

The incidence of penicillin sensitive staphylococci may be used as an indication of "street strains" of the organism, and they are not a clinical problem. Both hospitals showed a fluctuation around forty-fifty per cent of such strains. The remaining fifty-sixty per cent are potentially dangerous. A general decrease of percentage of sensitive strains, as indicated for Hospital A, may be regarded as a build-up of resistant strains and is cause for concern.

The question arises as to whether these resistant strains "just occur" at random or whether there is order to their occurrence. The persistence of antibiotic types in Hospital A would suggest a lack of randomness. Similarly, the gradual increase in staphylococci resistant to four and five antibiotics occurring simultaneously with a decrease in strains resistant to only one or two antibiotics in Hospital B (Figure 2) suggests an orderly mechanism in which resistance to a new antibiotic is superimposed upon available resistant strains.

Two mechanisms may be postulated to explain the increased resistance of strains: mutation and selection of resistant types, or interchange of nuclear material resulting in hybrid populations combining the resistance of their parents. In either case, it is apparent that resistant types can and do develop within a given hospital, and that keeping the organism and the patient separated by the well-known techniques of asepsis and cleanliness as well as the considered use of antibiotics in treatment is to be desired. While new drugs may alleviate a given situation, there is little reason for believing that new resistant strains will not develop in time. It is significant in this regard that more strains are sensitive to penicillin than to many other antibiotics.

SUMMARY

A survey of antibiotic resistant staphylococci was conducted in two hospitals as regards incidence and regularity of types. The data show a steady incidence as well as a constancy of increase in resistant types. The implications of the findings are discussed.

REFERENCES

1. Selected Materials on Staphylococcal Disease 1958 Public Health Service Publication Number 627, edited by D. S. Martin. 237 pp.

Editorial Comment: The system of typing leaves much to be desired as far as actual "strains of Staph" identifiable with phage typing are concerned.

Two investigators at the Stanford University School of Medicine have found the explanation for the severe diarrhea which is the major cause of death in cholera patients. The husband-and-wife team of Geraldine and Frederic Fuhrman reported at the American Physiological Society meeting at Stanford that the toxin given off by the cholera organism inhibits the absorption of salt by the intestine.

This largely prevents the absorption of water, since the water is taken up only together with salt. Accordingly, water accumulates in the intestines and diarrhea occurs.

A Quick Ambulatory Control for Mononucleosis

M. R. Chappel, M.D.*
and
John E. Chapman, M.D.†
Tucson, Arizona

Mononucleosis cases treated by steroids (Cortisone) improve and return to school sooner than cases treated otherwise.

Cortisone is a safe method of treatment and if used early, probably prevents complications.

Steroids, Penicillin or Achromycin have no effect upon the length of time required for the heterophile to return to negative.

The height of the positive heterophile titer has no bearing upon the severity of the illness.

Antibiotics have no effect upon mononucleosis but are used by the staff on the theoretical basis of preventing secondary infection while using an anti-inflammatory agent.

Liver function tests, sedimentation rates, repeat heterophiles, blood cultures and other expensive laboratory tests are unnecessary in most cases and only add to the expense of the illness.

IN the past most students who have had mononucleosis were absent from a few weeks to one semester because of their illness. This is unfortunate and unnecessary, for approximately 98 per cent of the patients with mononucleosis can, with proper treatment, feel well enough to attend classes. This has been proven in over sixty consecutive cases of mononucleosis treated at The University of Arizona's Infirmary during the last two years, twenty-four of these cases having occurred during the first semester of the 1959-60 school year.

The rationale of this treatment is based upon original research done at the University of Illinois under the leadership of Charles H. Drenckhahn, M.D., an internist of national reputation, and Lester M. Dyke, M.D., Director of the Student Health Service at the U. of I. at that time. Doctors Kensie, McLane and myself (Chappel) collaborated with Dr. Drenckhahn in this original project. Due to the dispersal of various members of the team, this study was not completed. However, enough work had been completed to reveal that a method of treatment for mononucleosis was found which is superior in results to any treatment used previously.

In this original study, numbers "one", "two", "three" and "four" in sequence were assigned to all cases of mononucleosis. A positive heterophile test was the criterion for a diagnosis and necessary before treatment was begun. Each patient was given a physical examination noting especially the condition of the throat and extent of the lymphadenitis as well as his complaints. Complete blood counts, urinalysis, cephalin flocculation and thymol turbidity tests were done on all patients. Each patient then received 1,200,000 units of long acting Penicillin (Bicillin)† by intramuscular injection. At this point the treatment varied according to the number assigned to the patient. All number one's received 1 cc. of ACTH* every 12 hours for three days. All number two's received 1 cc. Placebo*

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†Physician, Student Health Service, The University of Arizona, 1959-60, Tucson.

†Bicillin — provided gratuitously by the Wyeth Company.
*Cortisone, ACTH and Placebos—provided gratuitously by The Upjohn Company.

every 12 hours for three days. All number three's were given 12 Cortisone® tablets, 25 mg., with instructions to take one tablet four times a day. All number four's were given 12 Placebo tablets with instructions to take one tablet four times a day. Each Placebo could not be distinguished from its drug counterpart by inspection other than by Dr. Drenckhahn, supervisor of the project. The patients were treated on an ambulatory basis when possible, and each physician followed his own cases, usually seeing them every one to three days depending upon the treatment and severity of the case. All hospitalized cases were treated and followed up by Dr. Drenckhahn who used the same rotating type of treatments.

Every two weeks each patient was re-evaluated as to complaints, condition of throat, palpable glands, liver and spleen, with the results recorded on his chart. Complete blood count, urinalysis and liver function tests were repeated at this time. This routine of re-evaluation and re-testing was continued until the patient was either asymptomatic, the liver function tests were normal, or he failed to return, whichever occurred first.

The patients taking the steroids were noted to improve quicker and return to school sooner than the others. Subjective symptoms such as loss of fever, return of appetite and strength and reduction in size and tenderness of swollen glands were hastened in the steroid-treated cases. Actual improvement was borne out by a more rapid return to normal of the liver function tests in the steroid-treated cases. However, there was no difference between the steroid-treated cases and the others in the time required for the heterophile to return to normal.

With these results in mind, all mononucleosis cases at The University of Arizona were treated by the following regime. All cases diagnosed mononucleosis by a heterophile of 1:56 or greater were started on Penicillin V 400,000 units by mouth three times a day; Cortisone, 100 to 200 mg. a day, in divided doses by mouth, until the patient improved. Then the Cortisone was reduced to the minimum daily dose that would maintain this improvement. (This was usually 50-75 mg. daily after five to seven days of the original dosage.) All patients were seen every second or third day and the dosage of Cortisone adjusted according to the symptoms. All patients were carefully checked for spleen and liver enlargement and weight gain. The only other treatment was an increased hour of rest, high protein diet and the elimination of strenuous exercise.

All cases were treated on an ambulatory basis as far as practical, but a few days of hospitalization for high fever and diagnosis were sometimes necessary. Most students attended classes regularly, and only one student receiving this treatment for mononucleosis has dropped out of school in the more than sixty consecutive cases treated. This case is reported below.

For patients sensitive to Penicillin, Achromycin was used instead. No patient gained weight, no rashes were noted, and only two to four patients had palpable liver and/or spleen enlargement. There were no complications noted in any of the cases. There were no treatment failures unless the case presented could be so construed.

CASE REPORT

Mr. J. P. N., a 21-year-old white male, 5 feet 10 inches tall and weighing 210 pounds, was admitted to The University of Arizona Infirmary 4:30 P.M. on September 23, 1959 with the following complaints: fever, chills, sore throat, burning eyes, general malaise and dizziness of two to five days duration, and progressively getting worse. Temperature 102.4, pulse 120, blood pressure 120/80. The abnormal physical findings consisted of a bright red pharynx, much like that of early scarlet fever, and discrete shotty lymphadenitis of both the anterior and posterior cervical chains. No lymphadenitis was noted in axilla or groins. All other physical findings were normal. Blood count on day of admission was Hbg. 16.0 gms.; W.B.C. 7,400, Differential: Neut. 75%; Lymph. 22; Mono. 2; Esino. 1. All blood cells and platelets appeared normal. Urine: Sp. Gr. 1.024; Albumin negative; Sugar negative; Microscopic 0-2 W.B.C. and slight amount mucous per High Power field. Due to the lack of physical findings, the patient was treated for upper respiratory infection and placed on APC's, hot gargles and Wybiotic throat lozenges. Around midnight his temperature rose to 103, and shortly thereafter he had a shaking chill. The next morning his temperature dropped to 99.6, and it was thought he was improving. But around 11:30 A.M., his fever rose

to 104 followed shortly thereafter by another shaking chill. At this time he was started on Combiotic, 2 cc. daily. The temperature remained between 99.6 and 102 for the next 48 hours. During this time the patient complained of headache, nausea, vomiting, dizziness, loss of appetite and had daily sweats and chills.

On September 26th his temperature arose above 103 twice within 12 hours. Combiotic was stopped and Cyclomycin started. Blood was drawn for a blood culture, and Histoplasma and coccidioidomycosis tests were placed on the forearms. A blood count on September 26 showed a Hbg. 16.0 gms; W.B.C. 5,600 with the following differential: Neut. 58; Lymph. 40; Mono. 1; Base. 1. Again all cells appeared normal. The blood count was repeated the next day, September 27th, around noon, and showed the following: W.B.C. 10,600; Neut. 28, Lymph. 69 with 80 per cent of the lymphocytes atypical, and Esino. 3. A heterophile was done at this time and was positive through a dilution of 1:3584. The diagnosis was changed from U.R.I. to mononucleosis and the patient started on Cortisone, 50 mg. T.I.D. He received the first dose 50 mg. Cortisone around 6:30 P.M., and at midnight his temperature dropped to normal for the first time.

Coccidioidomycosis and histoplasmosis skin tests were negative at 48 hours. Antibiotics were continued, Cyclomycin changed to Penn Vee liquid, 250 mg. per 5 cc., because of nausea, vomiting and gastric distress. Anorexia became prominent and caused difficulty in sufficient food and fluids intake coupled with the resulting nausea. Severe throbbing headaches accompanied the fever rises, but no nuchal rigidity was noted. On September 27th the patient's serum was noted to be icteric.

The spleen and liver were both palpable on September 30. At this time his appetite started to improve, and the nausea and vomiting disappeared. Temperature varied from normal to spikes of 102. daily, with headaches, profuse diaphoresis, and shaking chills following each spike. Discouragement on the part of the patient over his seemingly lack of progress to get well prompted the staff to suggest a consultation by an outside physician. This was readily agreed to, and a consultation with a prominent internist was held on October 4. After reviewing the case by checking all records and examining the patient, it was his opinion that the patient was improving and that no change in treatment was indicated.

On October 5th the blood count was Hbg. 14.5 gms; W.B.C. 24,200; Neut. 18 with 6 per cent bands; Lymph. 82 with 31 per cent atypical with a heterophile of 1:1792. The patient responded under therapy and gradually improved and gained strength. On discharge his blood showed the following: Hbg. 14.5 gms., W.B.C. 6,800; Neut. 19, Lymph. 75 with 18 per cent atypical; Mono. 1; Esino. 3; Base. 2 and a heterophile of 1:1796.

This student was advised to drop out of school because of the severity of his attack and because of the time lost from school, 21 days. He dropped from school and returned home under the close supervision of his family physician, who was forwarded a summary of his case.

ADDENDUM

During the last year and a half we have treated a total of 88 cases of mononucleosis, 43 of which required hospitalization. From the time of diagnosis and the start of steroid therapy to the date of discharge, these 43 cases received a total of 95 days of bed care. This is an average of 2.2 days of bed care per patient required from the start of the steroid therapy to the discharge to class.

The change from a weak, tired, feverish patient into one who has a normal temperature and the feeling of well being all within three days is almost miraculous. The treatment of mononucleosis by steroids does exactly this in the majority of cases.

The question of reactivation of tuberculosis or peptic ulcer has been brought up. All of our students have had chest X-rays, complete physical examinations and full past histories recorded and on file at our infirmary. These are carefully checked, the student re-examined and a careful history again taken before treatment is started. To date we have encountered no untoward symptoms as the result of our steroid therapy. Perhaps this is due to the low dosage used and to the short duration of steroid therapy.

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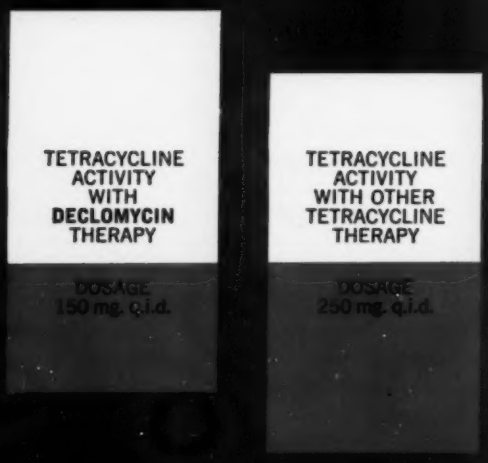
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DOSAGE 150 mg. q.i.d.
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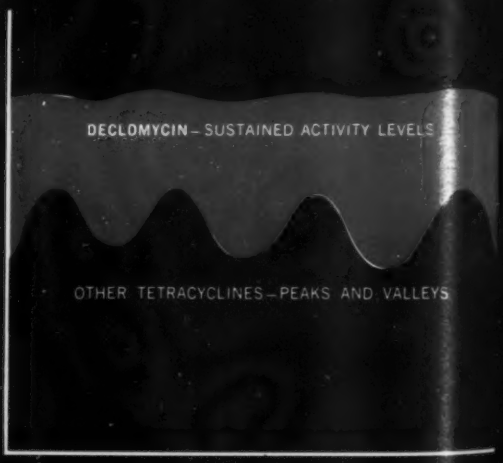

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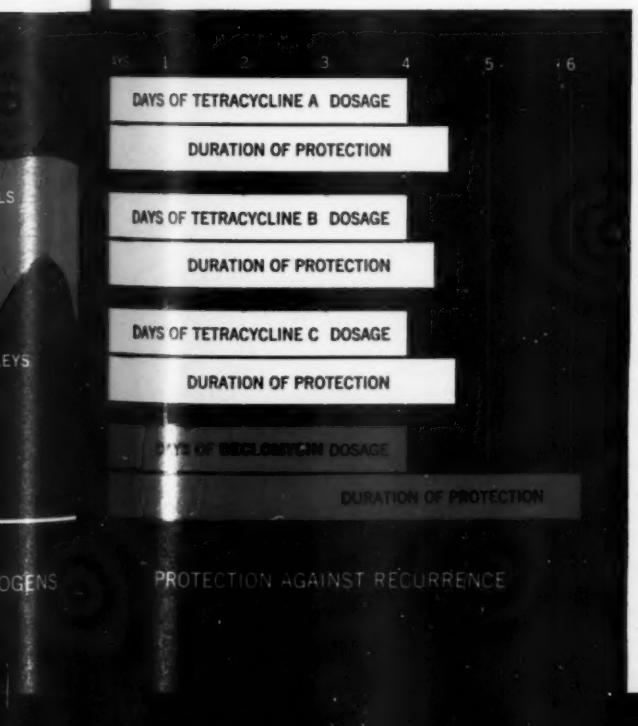

CAPSULES, 150 mg., bottles of 16 and 100. **Dosage:** Average infections—1 capsule four times daily. Severe infections—Initial dose of 2 capsules, then 1 capsule every six hours.

PEDIATRIC DROPS, 60 mg./cc. in 10 cc. bottle with calibrated, plastic dropper. **Dosage:** 1 to 2 drops (3 to 6 mg.) per pound body weight per day—divided into 4 doses.

SYRUP, 75 mg./5 cc. teaspoonful (cherry-flavored), bottles of 2 and 16 fl. oz. **Dosage:** 3 to 6 mg. per pound body weight per day—divided into 4 doses.

PRECAUTIONS—As with other antibiotics, DECLOMYCIN may occasionally give rise to glossitis, stomatitis, proctitis, nausea, diarrhea, vaginitis or dermatitis. A photodynamic reaction to sunlight has been observed in a few patients on DECLOMYCIN. Although reversible by discontinuing therapy, patients should avoid exposure to intense sunlight. If adverse reaction or idiosyncrasy occurs, discontinue medication.

Overgrowth of nonsusceptible organisms is a possibility with DECLOMYCIN, as with other antibiotics. The patient should be kept under constant observation.

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Tumors of the Central Nervous System

Abstracts from the Seventh Annual Arizona Cancer Seminar

Philip J. Hodes, M.D.

Philadelphia, Pennsylvania

The following items were abstracted from the presentation given by Dr. Philip J. Hodes of the Jefferson Medical College Hospital entitled "Tumors of the Central Nervous System." (A.J.B.)

ACCORDING to Kernohan, metastatic brain tumors arise most commonly from the lung. In his experience at the Armed Forces Institute of Pathology, one-third arise from bronchogenic carcinomas, about one-fourth from the intestinal tract, while about one-fifth of all metastatic brain tumors come from the breast, and an equal number from renal cancers.

"The most common osteolytic abnormality in the skull is metastatic disease. Second in frequency are the meningiomas. Least common are the primary bone sarcomas of the skull."

• • • •

"Hypernephromas, as a rule, are, from a microscopic point of view, not very malignant, but because of the tendency of the primary tumors to invade the renal veins, metastases often are widespread. Mitotic figures are not often seen in renal carcinomas, and the prognosis of these tumors is based on the presence, as well as the degree, of invasion of the renal veins.

Air studies are still very commonly employed, with ventriculography the procedure of choice in patients with increased intracranial pressure and encephalography in individuals who demonstrate no cerebral spinal fluid pressure elevation. Whereas, once the cerebral cisterns were routinely sucked dry and replaced by large quantities of air, there is an increasing tendency toward the use of much smaller amounts of air carefully guided and selectively examined. In our own experience cerebral angiography is being used with increasing frequency, often employed instead of pneumoencephalography. It is easier on the patient, it is an easier procedure to do, and the information is often much more than is obtainable from pneumoencephalography.

• • • •

Dr. Simon Kramer, Head of the Radiation Therapy Division of the Jefferson Medical College Hospital, has been interested in the treatment of brain tumors for many years. In 1953

the Medical Research Council of Great Britain set out to find whether surgery alone or surgery plus radiation therapy were equally effective in the treatment of brain tumors. Dr. Kramer was the radiation therapist in charge of this project. The following are Dr. Kramer's convictions in this regard.

Because brain tumors are relatively radio-resistant, one must constantly bear in mind the threat of normal necrosis during radiation therapy. Whereas embryonic brain tissue is more sensitive than adult brain tissue, the lethal dose for both is very close. Noteworthy, too, is the fact that the white matter of the brain is more radio-sensitive than is the gray matter. Worth remembering also is the greater radio-sensitivity of the brain stem as compared to the cerebrum itself.

In setting up the experiment in Great Britain in 1953, Dr. Kramer was very careful to select patients of the same age for comparison, patients with lesions approximately the same size, and the same histological groups. In all, more than 700 patients were considered for radiation therapy, and of these, in 555, the records are complete enough for interpretation.

According to Kramer there was a statistically significant improvement of 5 per cent in end results when patients were given radiation therapy in addition to the surgical procedure. Small though this figure may be, the statisticians of the British Research Council considered it meaningful.

Dr. Kramer gave these patients from 5000 to 7000 r in a period of six to seven weeks. In all, he used super-voltage therapy; in some rotation therapy was used, and in others stationary therapy depending upon the size of the tumor.

"CA" NOW AVAILABLE TO ALL DOCTORS

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Simply notify the Division office, 543 East McDowell Road, Phoenix, of your interest in "CA" for inclusion on mailing list.

Hypnosis in Medicine and Surgery*

by

Lillian Rachlin, M.D., F.A.C.S.†

Sepulveda, California

Hypnosis is a useful tool as an adjunct to orthodox medical therapy. It is felt that its continued exploration and use will result in improvement of the entire therapeutic regimen.

HISTORICAL BACKGROUND

HYPNOSIS has always played a part in human life. In early civilization, suggestion was used therapeutically by medicine men and witch doctors in connection with religious practices. Egyptian writings(4) of 3000 years ago describe hypnotic procedures much as they are performed today. In the Middle Ages, the "laying on of hands" resulted in cures when sufficient faith was developed. In 1770, Father Gossner(24) in Europe demonstrated his ability to heal people, combining religion with suggestion. In 1773, Mesmer,(11) after seeing Father Gossner's demonstration, introduced the theory of "invisible animal magnetism" to explain cures, thereby separating suggestion therapy from its religious connection. Although his explanations were not correct, Franz Anton Mesmer begins the modern history of hynotism.

In 1821, Recamier(24) in France reported painless surgery on a patient in the "magnetized" sleep state. In 1829, Jules Cloquet(24) reported to the French Academy of Medicine on his use of such anesthesia to perform a mastectomy. In 1837, Oudet(24) in France was the first dentist to extract a tooth painlessly using suggested anesthesia.

In 1843, a Scottish physician, James Braid,(3) practicing in Manchester, England, found that he could induce a trance-like state by suggestion and the gaze-fixation technique. He coined the word "hypnosis" from the Greek *hypnos*, meaning sleep.

In the United States, about the same time, Dr. Albert Wheeler(2) performed a nasal polypectomy under hypnosis, Doane(2) removed a tumor from the neck, and Dugas(2) did a breast amputation; however, hypnoanesthesia and its use in surgery was brought to the fore by James Esdaile,(10) an English physician. During the years from 1845 to 1851, he performed approximately 300 major operations utilizing this technique.

Workers such as Liebault,(2) Charcot(2) and Bernheim(1) used the hypnotic phenomenon as a psychological tool and clarified the basic re-

*Presented at the Arizona Veterans Administration Inter-Hospital Meeting, Veterans Administration Hospital, Tucson, April 23, 1960

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actions of the hypnotic trance so that it could be used as an adjunct to the healing arts.

The development of modern chemical anesthesia and the use of hypnotism by the stage performer and the charlatan have been the chief forces deterring the medical uses and the medical acceptance of hypnotism as another tool in the physician's armamentarium. The two World Wars produced a tremendous impetus to hypnotherapy. Its particular use in surgical therapy was in the field of hypnoanesthesia.

DEFINITION

Hypnosis has been defined(24) as a state of heightened suggestibility following an established rapport in which, through mechanisms not as yet fully understood, the patient is assumed to put himself into a condition resembling sleep. In this condition he readily accepts all suggestions given by the operator except those not in agreement with his conscience.

Suggestibility is the capacity of the individual to be affected by certain influences. Such influences, ideas, requests, or examples, when presented directly or indirectly, produce uncritical acceptance and initiate appropriate response in the patient who is susceptible to suggestion.

Many theories have been brought forth, but no theory completely explains hypnosis. Hypnosis has been explained(14) as (1) a form of sleep, (2) a conditioned reflex, (3) a regression to infancy, (4) behavior as the subject believes a hypnotized individual should behave, or (5) as a dissociation of the conscious and the subconscious.

BASIC CONCEPTS

For the most part, the use of hypnosis in medical practice will be limited to the treatment of disorders in which symptoms play minor defensive roles. In treating patients under hypnosis, we attempt to use the same type of procedures we would use in the waking state of psychotherapy; namely, reassurance, re-education, persuasion, direct symptom removal, treatment through psychobiologic techniques, and lastly, reconstructive therapy, or therapy directed at reconstructing the entire personality. For the most part, in general medicine, we confine ourselves to symptom removal, symptom amelioration, symptom displacement, re-education, persuasion and reassurance.

One criticism which many have to the hypnotic removal of symptoms is that it attempts to remove the symptoms without getting at the basic underlying cause of the illness and that therefore, it removes the symptoms but leaves the neurotic personality intact. However, in actuality, it seems that the very persons who decry such symptom removal are the same who would prescribe ergotamine for migraine, barbiturates for tension headaches, corticosteroids for asthma, etc., without getting at the underlying psychological conflict. What difference is it then, if tension headaches can be removed by teaching a process of relaxation rather than by giving repeated doses of a barbiturate? Is it not more constructive to teach the patient to relieve his tension through his own efforts rather than using a medication, that is an external "crutch"?

The state of hypnosis is divided(15) into four levels beyond the group labeled as uninfluenced. These are: hypnoidal, light trance, medium trance and deep or somnambulistic trance. Approximately 5 to 10 per cent of individuals are not susceptible to hypnosis. Ten per cent of persons may be taken into a hypnoidal state, another 25 per cent into the light trance, 35 per cent the medium trance, and 20 to 25 per cent into the deep trance.

For the general surgeon and medical man, the use of hypnosis will be confined largely to the hypnoidal, light or medium trance states. Occasionally it will be necessary to carry the patient into a deeper plane. This will be determined by the individual patient. These various trance states are not completely enclosed compartments and may mingle somewhat at their borders in their manifestations.

One of the most important points in the use of hypnosis is that it should be looked upon as an aid, but not a cure-all. It is not a substitute for general anesthetics, analgesics or narcotics.

CLINICAL APPLICATIONS

The list of conditions in which hypnosis may be used is legion. It may be used both in the treatment of functional and organic disease. Bernheim(1) and Bramwell(4) have used it successfully in almost every syndrome reported.

Probably nowhere has hypnosis been more extensively used than in the treatment of the psychoneuroses and their attendant somatic symp-

tomatology. Its use in these syndromes is either in the form of authoritative direct symptom removal or in combination with other simple psycho-therapeutic techniques.

Numerous reports have appeared in the literature in which atypical epileptic seizures have been relieved or considerably ameliorated by hypnosis or psychotherapy. Rosen(21) has reported a case of a woman with severe epileptic seizures of Jacksonian type, who had two cranial explorations because of her symptomatology. Her entire picture was based on psychogenic causes and was relieved by hypnotic therapy.

Bonello(2) reports the use of hypnosis in the treatment of eight cases of lower back pain, mild fasciitis, bursitis, all of which failed to respond to ordinary conservative methods of therapy for periods of up to eight weeks. No case was treated with hypnosis which had not had at least 10 to 14 days of ordinary conservative therapy. In most cases the symptoms were becoming progressively worse rather than better at the time that hypnosis was first attempted. After hypnotic therapy was begun, improvement was noted within 24 to 48 hours in almost every case and this improvement was progressive.

Hypnosis has been used in the pre-operative preparation of the patient for surgery, both to relieve the anxiety caused by the anticipation of surgery and to relieve part of the postoperative discomfort. In a study done at the University of Minnesota,(8, 17) it was found that pre-operative hypnosis and suggestions of comfort after surgery resulted in 55 per cent lessening of the amount of narcosis required.

In adult patients undergoing tonsillectomy(2) under local anesthesia, it has been found that by hypnotic augmentation of anesthesia, bleeding has been controlled in almost every case and postoperative discomfort has been minimal to non-existent.

Hypnosis has been used in burn cases.(5) It allays apprehension and has been used during painful repeated dressings, thus avoiding multiple general anesthetics.

It has also been used with good results in the postgastrectomy syndrome and in the treatment of various forms of pain such as phantom limb, pain with metastatic cancer and bizarre abdominal pain.

As stated earlier, hypnosis has been used as an anesthetic agent for a long time. Hypnoanesthesia is not true anesthesia (loss of sensory perception), but is analgesia (loss of pain perception). Hypnosis should not take the place of the techniques and agents of modern anesthesiology; however, there are certain types of cases for which hypnosis serves the best purpose. One indication is the patient who is known to be sensitive to local anesthetic agents and who requires surgery. There are conditions in which local infiltration is contraindicated, such as inflammation or infection, and in those cases in which general anesthesia is also undesirable, then hypnoanesthesia may be carried out easily.

It is important to re-emphasize the fact that hypnoanesthesia is not limited to what would technically be classified as minor surgery. All sorts of major operative procedures have been reported.

Case History on H.J.

This 39-year-old white male was admitted to Whipple Veterans Administration Center on August 12, 1959. The patient stated he had noticed increasing fatigue for the past six months. He had also noticed that his abdomen was increasing in size, that he was experiencing progressively severe pain in the left upper quadrant and flank, and that, in spite of a fairly good appetite, he had lost about 14 pounds in weight. H.J. was very apprehensive about the possibility of carcinoma being present because his mother and father had both died of malignancy.

Studies were completed and the patient was taken to the operating room on September 18, 1959 with the preoperative diagnosis of a tumor of either the left upper pole of the kidney or adrenal gland. At laparotomy, there was found a very large, vascular, soft tumor that was adherent to the upper pole of the kidney in the region of the adrenal gland. It was technically inoperable because of the large size and marked vascularity. A biopsy was taken which revealed an anaplastic carcinoma, probably adrenal cortical in origin.

Postoperatively, M. J. continued to complain almost constantly of pain and was very apprehensive and demanding. His diagnosis had been discussed wih him. It was decided that this patient would probably be a suitable candidate

for hypnosis. He was agreeable to having a session of "relaxation"; therefore, this was done. The patient was found to be very suggestible and was rapidly taken into a medium trance state. Posthypnotic suggestions were left to allay apprehension and to relieve pain. After the first session, there was noted to be a marked improvement in the mental attitude of the patient, as well as a decrease in complaints. He stated that during the session he had felt more relaxed than he had in many months. Thereafter, at varying intervals, the patient was hypnotized and specific complaints that might arise were treated with posthypnotic suggestion. Up to the present time, H. J. has had several readmissions to the hospital because of a chronic draining sinus from his incision and has received an occasional hypnotic session. He has gained weight, his mental attitude is fairly good and he has required nothing stronger than Darvon or A.P.C. tablets for pain secondary to the draining sinus.

Case Report on D. H.

This young white male was admitted to Whipple Veterans Administration Center on August 18, 1959, as a transfer from Ann Arbor, Michigan, Veterans Administration Hospital. His admission diagnoses were: 1) Bronchial asthma; 2) Agammaglobulinemia; 3) Chronic bronchitis; 4) Recurrent acute bronchitis with Staphylococcus aureus; 5) Pneumonitis. He was transferred to this facility with the thought that the dry climate might be beneficial.

During his hospitalization at Whipple, it was noted that D. H. was very apprehensive and demanding of continuous medication for his asthma. At the end of September, he developed symptoms that were compatible with the diagnosis of an acute exacerbation of chronic cholecystitis with lithiasis. This was confirmed by cholecystogram. On October 8, 1959, a cholecystectomy was done. The patient tolerated the surgical procedure very well. Because of his marked apprehension, one hypnotic session was held preoperatively and one the day after surgery in an effort to reassure the patient and insure a smoother postoperative course. Very good results were obtained as noted by a decrease in pulmonary symptoms, less coughing and wheezing, and a quieter, more relaxed patient. There was appreciable decrease in his requests for medication.

Several psycho-therapeutic sessions were held with D. H. at periodic intervals, some with and some without hypnosis. He became more cooperative and developed insight as to the cause of his pulmonary symptoms. He realized that psychotherapy under the supervision of a psychiatrist, as well as continuation of the self-relaxation techniques that he had been taught, would be beneficial.

The patient requested transfer back to Michigan because it was close to his home and family. He now felt that with competent psychiatric help his condition could improve. D. H. was, therefore, transferred back to Ann Arbor, Michigan, Veterans Administration Hospital on January 18, 1960.

In a letter received from the patient about a month after his return to Michigan, he stated that he was feeling very much better, although he did have to take occasional medication for his asthma. He stated that he was able to stay at home with his family and see a doctor only for his injections of gamma globulin.

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Clinical Pictures of Fluid Imbalances*

by

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Just as knowledge of the clinical characteristics of individual diseases is required for diagnosis and treatment of a patient with a combination of pathologic states, so is knowledge of the specific fluid imbalances necessary for diagnosis and treatment of the patient with combined disturbances of the body fluids. Such knowledge, plus the facts gained by clinical history, physical examination and laboratory tests, greatly facilitates diagnosis of combined imbalances and makes possible effective therapy. For the only solid basis for effective therapy is accurate systematic diagnosis.

CLINICAL PICTURES OF FLUID IMBALANCES

SINCE that period in history not too long ago when medicine emerged from the wilderness of witchcraft, magic and superstition, the approach to the diagnosis and treatment of disease has been chiefly clinical. When we as medical students were introduced to such pathologic states as rheumatic fever, appendicitis, lobar pneumonia and the contagious diseases, we were introduced to them as clinical pictures, and we learned them as clinical pictures. Each picture represented a sort of composite which included the clinical history, the symptoms, the physical findings and the laboratory data.

The clinical approach loses none of its value when one undertakes the study of fluid imbalances. Yet the usual method of studying these disturbances is about as clinical as a biochemist's nightmare. Using this traditional method one attempts to learn the biochemical deviations from the normal of water and electrolytes that can occur with diabetes, diarrhea, burns, ulcerative colitis, and so on through the whole gamut of pathology. Fluid imbalances are treated as "biochemical appendages" of diseases. This method is all very well for biochemists and investigators; for clinicians a clinically oriented system has clear advantages. We use one. We call it the "clinical picture approach." We examine fluid imbalances primarily, learning the underlying mechanisms responsible for them. We learn basic fluid imbalances as clinical pictures. By virtue of our knowledge of the physiology of disease we can determine which fluid imbalances will be likely to occur in which diseases and under what circumstances.

Body fluid imbalances represent disease states that are usually caused by disparities between intake and output of water and electrolytes. In health there is a balance between gains and losses of these substances. In disease one may have an abnormal decrease or increase in either intake or output of either water or electrolytes.

Now, in addition to abnormalities in the in-

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take and output of water and electrolytes, some disease states are characterized by fixation of water and electrolytes within the body. These substances may be lost, from the physiologic standpoint, in the accumulation of liquid in a distended intestine, or in ascites. Deficits can also result from increased use of water and electrolytes, such as occurs in infectious disease with high fever. Some imbalances occur because of malfunctioning of the body homeostatic mechanisms. Fortunately, the group of imbalances resulting from disturbances of the body homeostatic mechanisms is a minority group.

Since there are so many factors which may lie at the root of body fluid imbalances, it might appear that systematic classification is doomed to failure. Fortunately this is not the case, for all body fluid imbalances can logically be divided into 17 imbalances, each with its own clinical picture. Some imbalances may exist alone; others, in combination. Sometimes a succession of imbalances follow, one after another. In short, body fluid imbalances can properly be regarded as clinical entities. Like other clinical entities, they modify and are modified by coexisting pathologic states. And we must understand single imbalances if we are to understand combined imbalances.

Now, for doctors who have few or no laboratory facilities available, the clinical approach is a godsend. He doesn't have emergency 24-hour laboratory service available. He must assess a patient, make a diagnosis and proceed with therapy while awaiting a laboratory report.

Of these 17 basic imbalances which I mentioned, 12 stem from changes in properties of extracellular fluid. These include:

- Changes in volume
- Changes in sodium content
- Changes in potassium content
- Changes in calcium content
- Changes in base bicarbonate centent
- Changes in carbonic acid content

The following imbalances in properties can occur:

OUTLINE

WATER AND ELECTROLYTES

Gains:

- Ingested water
- Ingested food
- Tube feedings
- Oxidation of foodstuffs (water only)
- Oxidation of body tissues (water only)
- Parenteral feedings
- Rectal feedings

Losses:

- Vomiting
- Lungs — water vapor and carbon dioxide
- Burn exudate
- Gastric suction
- Perspiration
- Insensible loss of water
- Internal pooling and fixation
- Paracentesis
- Colitis
- Intestinal suction
- Draining intestinal fistula
- Stools
- Urine
- Ulcer exudate
- Wound exudate
- Loss into injured areas

PRINCIPLE BODY HOMEOSTATIC MECHANISMS

- Pituitary Mechanism, anterior, posterior
- Adrenal Mechanism
- Parathyroid Mechanism
- Renocardiovascular Mechanism

EXTRACELLULAR FLUID VOLUME DEFICIT

History:

- Abruptly decreased intake of water & electrolytes
- Vomiting
- Diarrhea

Laboratory Findings:

- Hemoglobin elevated

Clinical Findings:

- Dry skin and mucous membranes
- Oliguria
- Weight loss

- Volume Imbalances
  - Extracellular fluid volume deficit
  - Extracellular fluid volume excess
- Concentrational Imbalances
  - Electrolyte concentration deficit
  - Electrolyte concentration excess
- Compositional Imbalances
  - Potassium deficit
  - Potassium excess
  - Calcium deficit
  - Calcium excess
  - Primary base bicarbonate deficit (metabolic acidosis)
  - Primary base bicarbonate excess (metabolic alkalosis)
  - Primary carbonic acid deficit (respiratory alkalosis)
  - Primary carbonic acid excess (respiratory acidosis)

There is a second type of imbalance characterized by changes in position of extracellular fluid. Normally one-fourth of the extracellular fluid exists in plasma, and three-fourths as interstitial fluid. Under varying clinical conditions, two types of shifts may develop. First of all, a plasma-to-interstitial fluid shift can occur. Second, water and electrolytes can shift from interstitial fluid to plasma.

Finally, we have three imbalances making up the total of 17. These are deficits. They include protein deficit, calorie deficit and vitamin deficit. Now, let's have some thumbnail sketches of the clinical pictures of the 17 basic fluid imbalances. The sketches are well named, for they are indeed sketchy, but they do provide informational hooks on which to hang the considerable body of information required for practical mastery of the subject.

The first of the imbalances characterized by changes in properties of extracellular fluid is extracellular fluid volume deficit. This deficit results from decreased intake of water and electrolytes, as in infectious disease, or from acute loss of water and electrolytes, as in vomiting. Key clinical findings include lassitude, dry skin and mucous membranes, and oliguria. There is weight loss. A laboratory finding is elevated hemoglobin, since the volume of the plasma is decreased.

EXTRACELLULAR FLUID VOLUME EXCESS

History:
- Excessive infusion of isotonic saline
- Chronic kidney disease

Laboratory Findings:
- Hemoglobin depressed

Clinical Findings:
- Puffy eyelids
- Moist rales in the lungs
- Pitting edema
- Rapid weight gain

SODIUM DEFICIT

History:
- Excessive sweating plus drinking water
- Excessive infusion of carbohydrate and water
- Gastointestinal suction plus drinking water

Laboratory Findings:
- Plasma sodium level depressed
- Specific gravity urine depressed

Clinical Findings:
- Apprehension
- Abdominal Cramps
- Diarrhea

SODIUM EXCESS

History:
- Excessive infusion of isotonic saline
- Tracheobronchitis
- Copious, watery diarrhea

Laboratory Findings:
- Plasma sodium elevated
- Specific gravity urine elevated

Clinical Findings:
- Excitement
- Dry, sticky mucous membranes
- Oliguria

POTASSIUM DEFICIT

History:
- Diarrhea
- Ulcerative colitis
- Recovery from diabetic acidosis

Laboratory Findings:
- Plasma potassium depressed

Clinical Findings:
- Anorexia
- Silent intestinal ileus
- Soft muscles

The next imbalance is volume excess, caused by excessive retention of water and electrolytes, when so-called "Normal Saline" is given in excessive quantities or when excessive retention of water and electrolytes occurs in congestive heart failure. Key clinical findings include puffy eyelids, moist rales in the lungs and pitting edema. There is rapid weight gain. A laboratory finding is decreased hemoglobin, since the plasma volume is increased.

The next clinical picture, electrolyte concentration deficit, is caused by loss of water and electrolytes replaced by water only. Excessive sweating followed by drinking of water may bring it on. So may drinking water while gastrointestinal suction tubes are removing water and electrolytes. The imbalance may result from excessive loss of electrolytes from the body as in adrenal insufficiency. Key clinical findings include apprehension, abdominal cramps and diarrhea. The plasma sodium level is characteristically below 137 mEq./L. and the specific gravity of the urine below 1.010.

Electrolyte concentation excess results when water intake is decreased or when there is excessive loss of water through rapid and deep breathing as in tracheobronchitis. It may also result when water in excess of electrolytes is lost in copious, watery diarrhea or in the urine of untreated diabetes insipidus. Key clinical findings include excitement progressing to mania; dry, sticking mucous membranes; and oliguria. The plasma sodium may rise aboue 147 mEq./L. and the specific gravity of the urine above 1.030.

Potassium deficit results when there is excessive loss of potassium-rich secretions as in severe vomiting, ulcerative colitis or infantile diarrhea. It may occur when there is increased utilization of potassium as in the healing phase of burns and in recovery from diabetic acidosis. The key clinical findings include anorexia, muscles soft (like half-filled water bottles) and silent intestinal ileus. The plasma potassium is usually below 4 mEq./L.

Potassium excess results from retention of potassium in the body and may occur in severe kidney disease, excessive release of potassium due to burns or crushing injuries, or with excessive parenteral administration of potassium.

POTASSIUM EXCESS

History:
- Burns
- Crushing injury
- Kidney disease
- Excessive infusion of potassium solutions

Laboratory Findings:
- Plasma potassium elevated

Clinical Findings:
- Oliguria
- Intestinal colic
- Diarrhea

CALCIUM DEFICIT

History:
- Sprue
- Acute pancreatitis
- Hypoactive parathyroid glands
- Excessive infusion of citrated blood

Laboratory Findings:
- Plasma calicum depressed

Clinical Findings:
- Tingling of fingers
- Tetany

CALCIUM EXCESS

History:
- Tumor of parathyroid glands
- Excessive vitamin D for therapy
- Multiple myeloma

Laboratory Findings:
- Plasma calcium elevated

Clinical Findings:
- Relaxed muscles
- Flank pain
- Deep thigh pain

PRIMARY BASE BICARBONATE DEFICIT

History:
- Excessive infusion of isotonic saline
- Diabetes mellitus

Laboratory Findings:
- Acid urine
- Plasma bicarbonate depressed

Clinical Findings:
- Disorientation
- Shortness of breath on exertion
- Deep rapid breathing

It may be caused by excessive retention of potassium due to adrenal insufficiency. Key clinical findings are oliguria progressing to anuria, intestinal colic and diarrhea. The plasma potassium is usually above 5.6 mEq./L.

Calcium deficit is caused by excessive loss of calcium from the body as in the steatorrhea of sprue. It also occurs when calcium from the body fluids is immobilized in acute pancreatitis, massive subcutaneous infections or generalized peritonitis. It may occur when the parathyroid glands become hypoactive as with excessive surgical removal. It may result from the inactivation of calcium by excessive administration of citrated blood. The key clinical findings include tetany, tingling of the fingers and muscle cramps. The plasma calcium is characteristically below 4.5 mEq./L. and the Sulkowitch test on urine fails to show precipitation.

Calcium excess results from excessive mobilization of calcium because of overactivity of the parathyroid glands, tumor of the parathyroid glands, or with excessive administration of vitamin D. The key clinical findings include relaxed muscles, flank pain from kidney stones and deep bony pain; for example, in the thighs. The plasma calcium is characteristically above 5.8 mEq./L. and the urinary output of calcium as evidenced by the Sulkowitch test is greatly increased.

The first metabolic disturbance is base bicarbonate deficit, usually called metabolic acidosis. It is caused by any clinical event which decreases the amount of base bicarbonate. Thus, the acidic ketones of uncontrolled diabetes mellitus displace base bicarbonate, disturbing the ratio and tilting the teeter-totter to the left. When excess chloride is introduced into the body, base bicarbonate is similarly displaced. The key clinical findings include disorientation, shortness of breath on exertion, deep rapid breathing and acid urine. The plasma bicarbonate, which reflects the amount of bicarbonate on the teeter-totter, is depressed below normal.

Base bicarbonate excess, usually called metabolic alkalosis, is caused by any clinical event which weights the base bicarbonate side of the balance. Excessive ingestion of sodium bicar-

PRIMARY BASE BICARBONATE EXCESS

History:
- Vomiting
- Excessive infusions of alkalies
- Gastric suction

Laboratory Findings:
- Alkaline urine
- Plasma bicarbonate elevated

Clinical Findings:
- Hypertonic muscles
- Tetany

PRIMARY CARBONIC ACID DEFICIT

History:
- Deep rapid breathing
- Oxygen lack
- Fever
- Salicylate intoxication

Laboratory Findings:
- Alkaline urine
- Plasma bicarbonate depressed

Clinical Findings:
- Deep rapid breathing
- Tetany

PRIMARY CARBONIC ACID EXCESS

History:
- Pneumonia
- Emphysema
- Morphine poisoning
- Respiratory suppression

Laboratory Findings:
- Acid urine
- Plasma bicarbonate elevated

Clinical Findings:
- Disorientation
- Respiratory embarrassment

PLASMA-TO-INTERSTITIAL FLUID SHIFT

History:
- Burns
- Massive crushing injuries
- Intestinal obstruction

Laboratory Findings:
- Hemoglobin elevated

Clinical Findings:
- Unconsciousness
- Pallor
- Low blood pressure

bonate causes such a weighting. When chloride is lost as in vomiting or gastric suction, the bicarbonate anions must increase in compensation since the total cations must always equal the total anions. Either situation tilts the teeter-totter to the right. Alkalosis is present. Key clinical findings include tetany, muscle hypertonicity and alkaline urine. Plasma bicarbonate is usually elevated.

Respiratory disturbances affect the carbonic acid or left side of the teeter-totter. Consider, first, carbonic acid deficit, caused by any condition which results in increased rate and depth of breathing with blowing off of carbon dioxide. Recall that carbonic acid of the extracellular fluid is the source of carbon dioxide blown off in the lungs. Excessive blowing off of carbon dioxide reduces the amount of carbonic acid in the extracellular fluid and causes the teeter-totter to tilt to the right. Alkalosis is present. Clinical conditions causing increased rate and depth of breathing include oxygen lack, fever and high temperature. Key clinical findings include tetany, deep rapid breathing and alkaline urine. The plasma bicarbonate is depressed from the normal.

Carbonic acid excess results when carbon dioxide is retained with a resultant retention and increase of carbonic acid in the extracellular fluid. It is caused by conditions which suppress respiration such as pneumonia, emphysema and morphine poisoning. There is a weighting of the carbonic acid side of the teeter-totter, which tilts to the left. Acidosis is present. Key clinical findings include disorientation, respiratory embarrassment and acid urine. The plasma bicarbonate level is above normal.

Now let us consider changes in position of extracellular fluid. The first involves a shift of water and electrolytes from the plasma into the interstitial fluid, a plasma-to-interstitial fluid shift. The mechanism of this shift is not known, but is probably neurogenic in nature. It includes such clinical occurrences as burns, massive crushing injuries and perforated peptic ulcer. Key clinical findings include pallor, low blood pressure and unconsciousness. The hemoglobin is elevated since water and electrolytes have shifted from the plasma.

An interstitial fluid-to-plasma shift of water and electrolytes can result from excessive intravenous administration of hypertonic solutions such as serum albumin, plasma or dextran. The osmotic effect of such solutions draws water and electrolytes from the interstitial fluid. It can occur in recovery from a plasma-to-interstitial fluid shift. One may have an interstitial fluid-to-plasma shift which is compensatory in nature following the internal or external loss of whole blood. Key clinical findings include pulmonary edema, engorgement of peripheral veins, and bounding pulse. The hemoglobin is decreased in interstitial fluid-to-plasma shift, since there is an excess of water and electrolytes in the plasma.

Finally, let us consider 3 changes in the nutritional status of the body. The first is protein deficit and is caused by any condition involving loss of protein from the body such as severe hemorrhage, burns, draining ulcers, by increased utilization of protein as in severe trauma, or by inadequate intake of food as in starvation. Key clinical findings include fatigue, loss of muscle mass and tone and anorexia. There is also loss of weight. The plasma albumin level may be below 4.0 Gm./100 ml.

Caloric deficit results from decreased intake of calories as in starvation or from increased utilization of calories. Automatically, caloric deficit leads to protein deficit as body tissues are burned for energy purposes. Key clinical findings include mental depression, shortness of breath and loss of muscle tone. Acetonuria may be found.

Vitamin deficits result from decreased intake of vitamins as in starvation or from increased utilization of vitamins as in chronic infectious disease or severe injury. Key clinical findings may include the night blindness of vitamin A deficiency, the beefy-red tongue of B deficiency and the bowed legs of rickets. The x-ray findings on examination of the bones in vitamin C deficiency and vitamin D deficiency are characteristic.

Given familiarity with the clinical pictures of fluid imbalances, the doctor is then in a position to analyze a patient with potential disturbances

of the body fluids in a systematic manner, evaluating him from the standpoint of changes in volume of the extracellular fluid; changes in composition with particular reference to sodium, potassium, calcium, base bicarbonate and carbonic acid; changes in position with reference to shifts of water and electrolytes from the plasma to the interstitial space and vice versa; and finally, from the standpoint of nutritional deficits of protein, calories and vitamins.

Now, suppose the doctor has a patient whose intake of water and electrolytes has been abruptly decreased because of an infection. At the same time he has lost water and electrolytes through vomiting and excessive perspiration. The doctor knows that this patient is a likely candidate for an extracellular fluid volume deficit. Clinical findings plus information concerning acute weight loss and laboratory findings help clinch the diagnosis.

Suppose the doctor has a patient who has lost large amounts of potassium-rich secretions, such as might occur in the stool losses of ulcerative colitis. From the history of the disease the physician knows that the patient is a candidate for potassium deficit, particularly if his food intake has decreased. Clinical findings of this deficit plus informatory laboratory findings confirm the suspicions based on the history.

Suppose a patient has suffered massive crushing. He is pale. His blood pressure is low. Perhaps he is unconscious. The physician has the clue to a plasma-to-interstitial fluid shift. It is hardly necessary to corroborate it, but an elevated hemoglobin would.

Perhaps our patient has been at work clearing a mine cave-in on a mountain top. Because of the oxygen deficit at that altitude, he has been breathing deeply. This deep breathing has blown off excessive quantities of carbon dioxide, and he has developed carbon dioxide deficit inducing respiratory alkalosis.

The patient with acute pancreatitis should be suspected of having a calcium deficit since calcium is often bound up in the secretions that surround the inflamed pancreas. The doctor's suspicions will be corroborated if the patient

INTERSTITIAL FLUID-TO-PLASMA SHIFT
- History:
  - Excessive infusion of hypertonic solutions
  - Recovery phase of plasma-to-intestitial fluid shift
  - Compensation following loss of whole blood
- Laboratory Findings:
  - Hemoglobin depressed
- Clinical Findings:
  - Bounding pulse
  - Pulmonary edema
  - Peripheral veins

PROTEIN DEFICIT
- History:
  - Hemorrhage
  - Trauma
  - Wounds or ulcers
- Laboratory Findings:
  - Hemoglobin depressed
- Clinical Findings:
  - Anorexia
  - Weight loss
  - Loss of muscle mass and tone

CALORIC DEFICIT
- History:
  - Decreased food intake
  - Gastrointestinal disease
  - Chronic infection
- Laboratory Findings:
  - Acetone in urine
- Clinical Findings:
  - Mental depression
  - Shortness of breath
  - Loss of muscle mass and tone

VITAMIN DEFICIT
- History:
  - Chronic infection
  - Severe injury
- Laboratory Findings:
  - Characteristic x-ray findings in specific deficiencies
- Clinical Findings:
  - Night blindness
  - Beefy-red tongue
  - Bleeding gums
  - Starvation
  - Impaired wound healing
  - Bowed legs

has tingling of the fingers, muscle cramps and laboratory findings suggesting calcium deficit.

A patient who has lost large quantities of a chloride-rich secretion such as gastric juice will be a candidate for base bicarbonate excess, since loss of chloride from the body causes a compensatory increase in the base bicarbonate. Remember, the total number of anions must always equal the total number of cations. Chloride and bicarbonate are both anions. Lose one; the other builds up. The physician will recall that this patient is a candidate for potassium deficit too, since he is also losing potassium in that vomitus. When the physician corrects the base bicarbonate excess by giving chloride, he will give potassium at the same time.

The physician familiar with the clinical picture concept will immediately think of protein deficit when he sees a patient suffering from hemorrhages, burns, ulcer or severe trauma. Given such key clinical findings as fatigue, loss of muscle tone and poor appetite, his suspicions will be corroborated. If there has been weight loss, and depression of the plasma-albumin level, the diagnosis is clinched.

The patient who has perspired excessively and then drunk plain water is an excellent prospect for sodium deficit. With a positive history and key clinical findings such as apprehension and abdominal cramps, the physician has a sound basis for diagnosis.

And so one can go on and on through the various imbalances. Bear in mind that imbalances are frequently compounded by other imbalances. The baby with acute diarrhea, if not properly treated, can progress from acute extracellular fluid volume deficit to a primary base bicarbonate deficit. After a few days potassium deficit can be added. A little later on, sodium excess may develop because of watery diarrhea. A physician with knowledge of clinical pictures of fluid imbalances will not permit the situation to advance to such a sad state.

The patient with diabetic ketosis frequently presents a number of imbalances including extracellular fluid volume deficit, primary base bicarbonate deficit and potassium deficit.

A patient who is unwisely given an excessive quantity of isotonic solution of sodium chloride may develop extracellular fluid volume excess. If an infectious process has been present, this excessive saline can well tip the scales in favor of base bicarbonate deficit by imposing an excessive chloride load on the kidneys.

A systematic approach to diagnosis is of first importance in properly evaluating the patient with fluid imbalances. First, a careful clinical history should be taken, jotting down facts suggestive of specific imbalances. The past intake and output of fluid should be reviewed with particular emphasis on the previous one or two days.

Such questions as these should be answered: Has the patient been eating and drinking normally? Have therapeutic fluids been given by tube, rectum or parenterally? Have abnormal losses of body fluids occurred in the form of perspiration, vomiting, gastric or intestinal suction, enterostomy, drainage from fistulas, liquid stools, wound or burn exudate?

Sometimes a rough estimate of the intake-output record can be obtained from the history. In carrying out the physical examination, the physician should list findings that may indicate a specific clinical picture. Laboratory findings should be studied. Now, with pertinent data available from the clinical history, physical examination and laboratory values, the physician has a solid basis for a systematic diagnosis which should include both the imbalances present and their approximate severity.

We have now sketched the 17 basic clinical pictures of imbalances of the body fluids. While a patient whose body fluids have been disturbed may suffer from only one imbalance, most will manifest a combination of two or more.

The clinical state of our patient might appear hopelessly confusing unless one uses the clinical approach and evaluates the history, symptoms, physical findings and laboratory findings of the patient. Analyze the state of his body fluids from the standpoint of volume of extracellular fluid, sodium level, potassium level, calcium level, base bicarbonate level, carbonic acid level. Determine whether he has

shifts of extracellular fluid from plasma to interstitial space or vice versa. Discover if he has a deficit of protein, calories or vitamins. This systematic approach is amazingly effective in lifting the fogs of confusion. As Sir William Osler says, "System, or as I shall term it, the virtue of method, is the harness without which only the horses of genius travel." Most of us, including your speaker, are not horses of genius. Most of us will be helped greatly by the use of systematic approach to diagnosis of body fluid imbalances.

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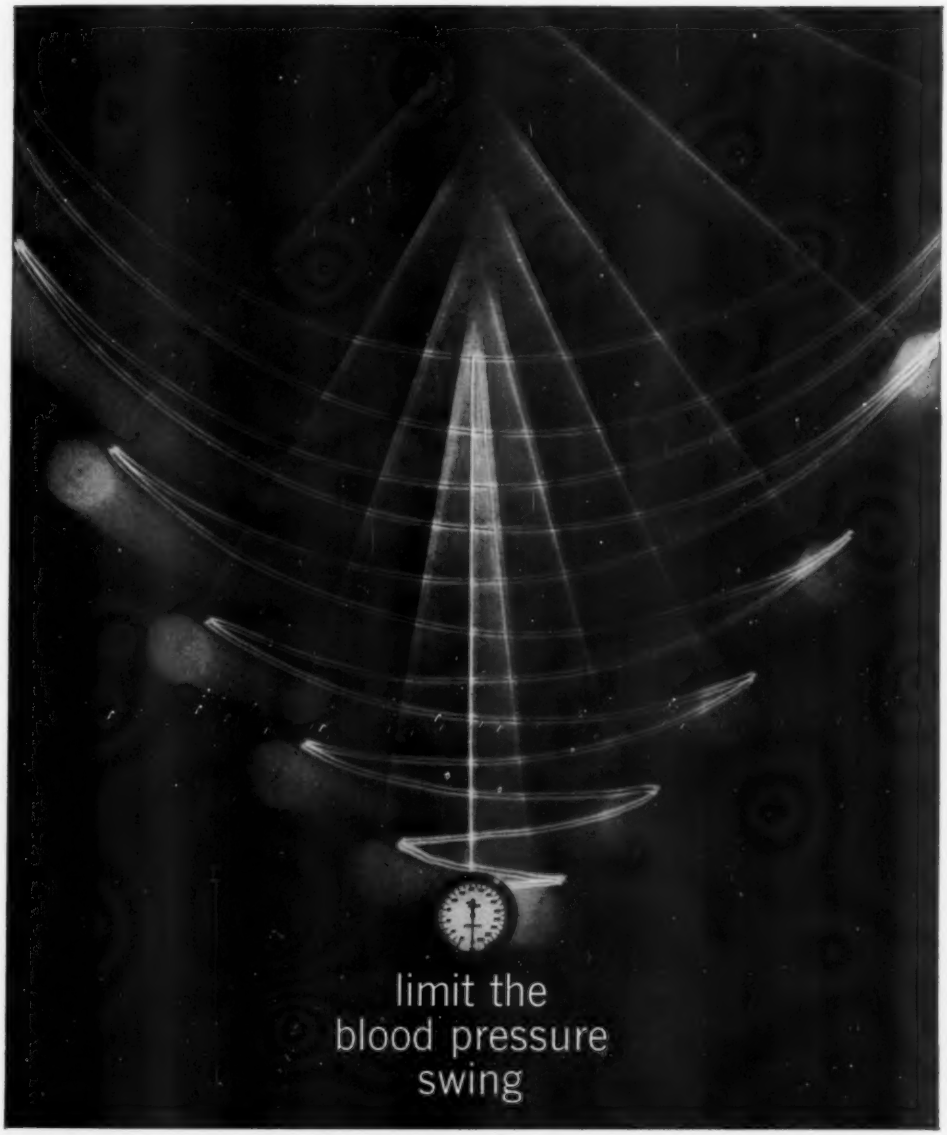

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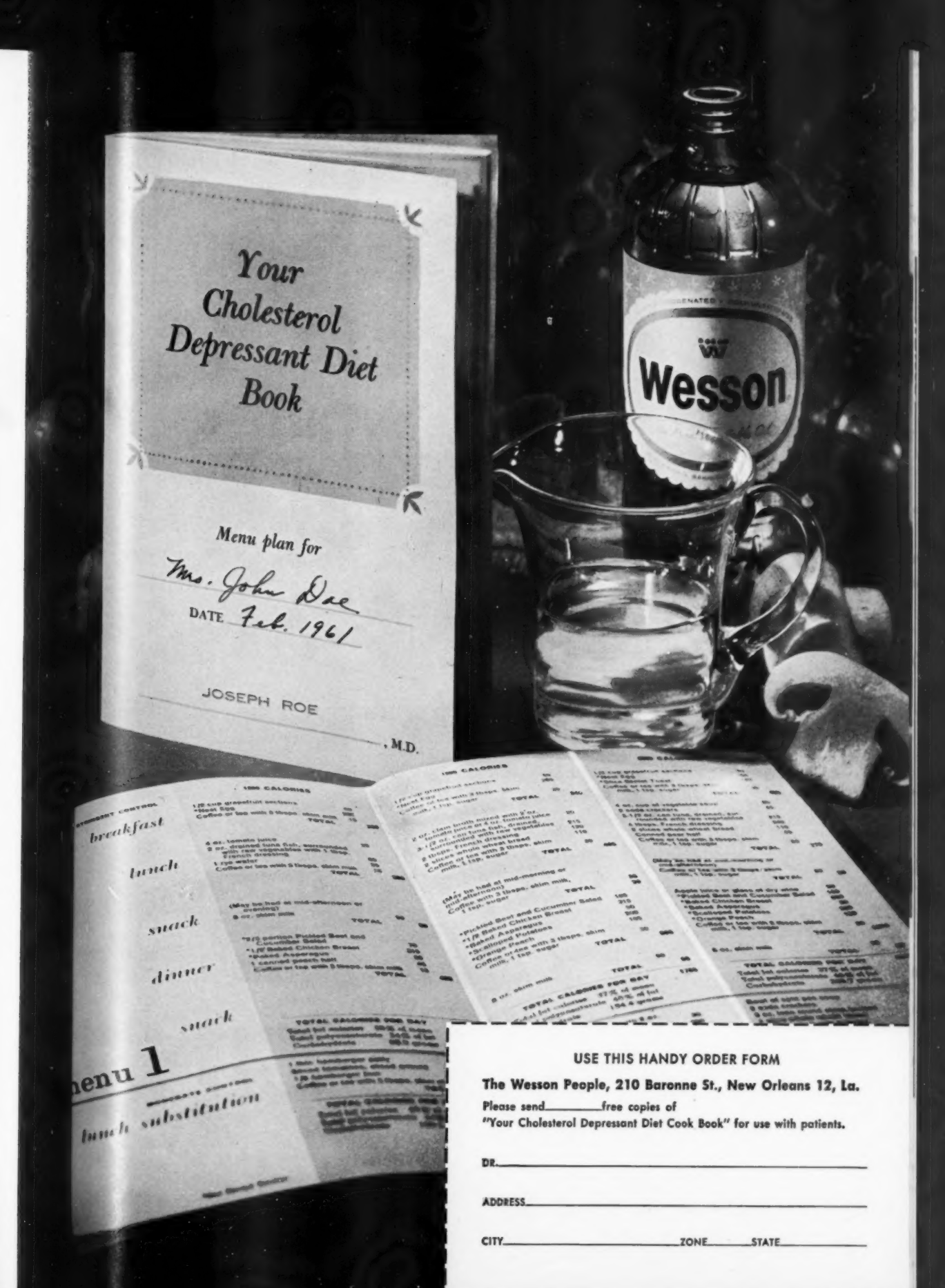

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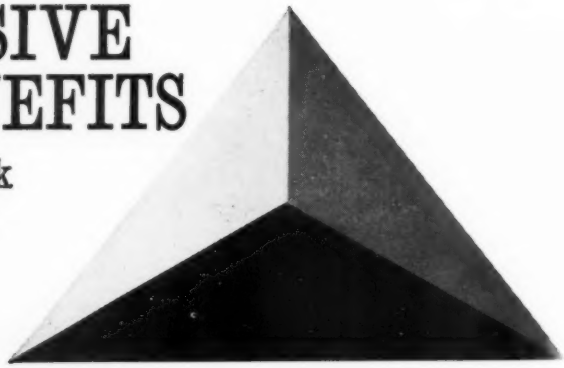

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Each capsule contains: Ethinyl Estradiol 0.01 mg. • Methyl Testosterone 2.5 mg. • d-Amphetamine Sulfate 2.5 mg. • Vitamin A (Acetate) 5,000 U.S.P. Units • Vitamin D 500 U.S.P. Units • Vitamin B_{12} with AUTRINIC® Intrinsic Factor Concentrate 1/15 U.S.P. Unit (Oral) • Thiamine Mononitrate (B_1) 5 mg. • Riboflavin (B_2) 5 mg. • Niacinamide 15 mg. • Pyridoxine HCl (B_6) 0.5 mg. • Calcium Pantothenate 5 mg. • Choline Bitartrate 25 mg. • Inositol 25 mg. • Ascorbic Acid (C) as Calcium Ascorbate 50 mg. • l-Lysine Monohydrochloride 25 mg. • Vitamin E (Tocopherol Acid Succinate) 10 Int. Units • Rutin 12.5 mg. • Ferrous Fumarate (Elemental iron, 10 mg.) 30.4 mg. • Iodine (as KI) 0.1 mg. • Calcium (as $CaHPO_4$) 35 mg. • Phosphorus (as $CaHPO_4$) 27 mg. • Fluorine (as CaF_2) 0.1 mg. • Copper (as CuO) 1 mg. • Potassium (as K_2SO_4) 5 mg. • Manganese (as MnO) 1 mg. • Zinc (as ZnO) 0.5 mg. • Magnesium (MgO) 1 mg. • Boron (as $Na_2B_4O_7.10H_2O$) 0.1 mg. Bottles of 100, 1000.

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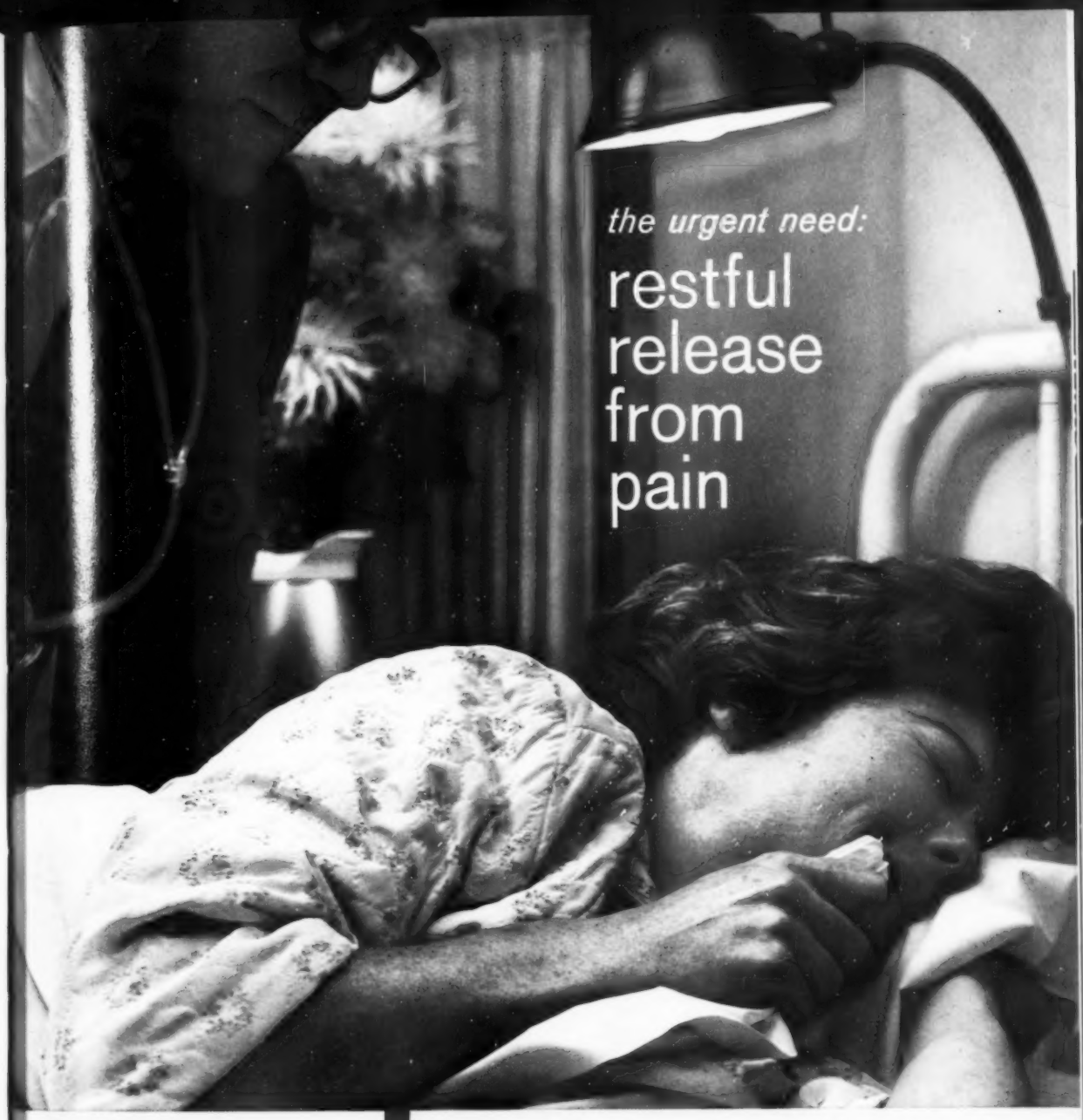

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(Basic formula)

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PHENAPHEN with Codeine ..... ¼ gr.

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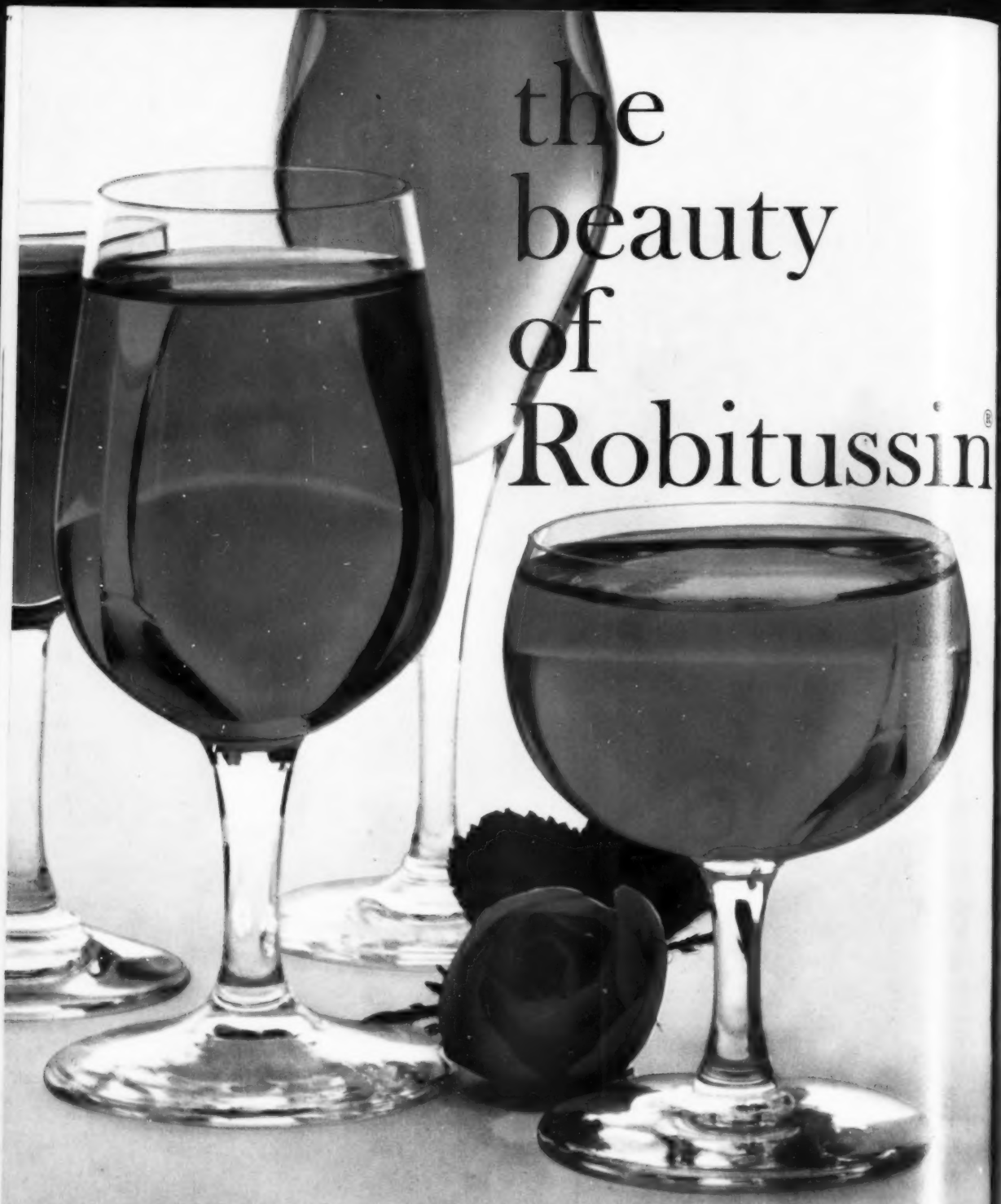
Making today's medicines with integrity . . . seeking tomorrow's with persistence



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The President's Page

The Relevant Issue

Lindsay E. Beaton, M.D.

Lindsay E. Beaton, M.D.

The essence of an historical epoch is distilled from the vital preoccupations of its people, or at least from the concerns of the leaders who dictate the tone of the times. Military conquest, economic aggrandizement, religious conversion, and cultural preeminence have all been chapter headings in man's annals. Each age centers on what it finds fateful, and landmark ages are measured by great issues. In a century of popular vote and popular information, the focus shifts to what the public as a whole believes important, or can be induced or persuaded to so consider. We may now have reached one of the watersheds of history that will determine the course of a long stretch of the future. When the outlook of the world is clouded, when national purpose has faltered, when the very structure of medical practice is questioned, it may be useful to stand back from events and try to extract the significance from the long term.

One of America's most perceptive social critics, Peter F. Drucker, in a sardonically titled article, "The Almost Secret Art of Being an Effective President", in a recent issue of *Harper's Magazine*, has defined a conception that is fruitful in fields other than politics, perhaps in every modern aspect of the human condition. He says that to be potent, the chief executive of this country must learn to aim national effort at "the issues that are relevant to the situation. 'I would rather be relevant than right' should be the motto of the effective President. The right answer to an irrelevant question misdirects. But the wrong answer to a relevant issue still puts the spotlight where it belongs." Mr. Drucker then points to questions that still occasion political noise but for practical purposes have been settled – isolationism versus internationalism, war versus peace, communist economic efficiency versus capitalism, unrestricted free enterprise versus the welfare state. For better or worse internationalism has been chosen, war is unthinkable with nuclear weapons, both Western and totalitarian economics have demonstrated capacity to produce material goods and technical knowledge, and the welfare state is the certain shape of the new society of the century. As

Sidney Hook of New York University has observed in another place, "Even those who condemn the welfare state will, in the very interests of national security, have to continue it. Today its only alternative is the 'ill-fare' state." In contrast, the relevant issue, says Drucker, is freedom versus tyranny. This is the contest that lights the day, too often with shadows of tragedy. His clarification finds reflection in the contemplations of others. For example, Salvador de Madariaga, though he emphasizes that his injunction does not imply martial adventuring, says in his latest book, "The West should make it clear and official that its aim is the freedom of all the nations and peoples of the earth."

This is a deceptively simple theorem that may yet be the signature of the age. It cuts through the dead wood of past problems; it raises an inspiriting objective; it is a daring vision for an extraordinary time. To an American it evokes a purpose deeply imbedded in the democratic experiment. In "The Purpose of American Politics," Hans J. Morgenthau perceives in our history the specific mission of seeking equality in freedom. He hopes for a renewal of enthusiastic dedication to this resolve if we are to regain the high road of our destiny as a nation. This is no place to write a political treatise, but it is heartening to remark that a realization of the urgency of freedom as a national aim exists on both sides of the party street. It was one of the leit-motifs of the Kennedy campaign, and on the other hand it is the illuminating faith in Barry Goldwater's "The Conscience of a Conservative." We satirize what we hold dearest, and the love of liberty underlies Mark Twains often quoted remark: "It is by the goodness of God that in our country we have three unspeakably precious things: freedom of speech, freedom of conscience, and the prudence never to practice either of them."

This definition of the relevant issue of the era can be applied to every sector of the culture. Its application to medicine is especially telling. First of all one may count the medical disputes that have been disposed of, that no longer merit the attention of serious argument. Decisions on these questions have become part of the living tissue of the profession. The once bitter battle of group or panel practice against solo practice is an initial example. No matter how loudly some dissenters may howl, the economics and efficiency requirements of modern medicine have brought various kinds of groups into spreading existence. There is no back-tracking along this road. The choice between individual financing of the costs of illness or group health insurance has also been made, and the profession as a whole welcomes the growth of the health insurance principle. Private medical education under auspices largely controlled by organized medicine has been replaced by academic management, often under State patronage, with federal aid, direct or indirect, as indispensable backing. The issue has been settled. No matter what debating points are adduced in the future, national financial assistance to medical schools is going to increase, or the institutions are going to be unable to do their jobs, which is an intolerable alternative. This is not to say that such intervention does not breed real threats to academic and medical independence, but only the deluded can fail to see that federal aid to professional training is nonetheless here to stay. Another decided question concerns fee schedules. The day is over of unrestricted license to charge all that the patient will tolerate. Probably we are also seeing the last of the venerable custom of collecting fat fees from the rich to balance eleemosynary care of the poor. The doctor can play at being neither Robin Hood nor Karl Marx; the equalization of socio-economic disparities is not his role. The actuarial demands of insurance plans, popular concern with the expense of sickness, and an increasingly egalitarian social order have combined to ensure the final victory of the fee schedule conception, in spite of the ululations of those who find it a peremptory standardization of the worth of medical and surgical procedures. The relative value formulation has been given its lumps lately, but its acceptance also seems solid. Governmental participation in vendor payments has been approved in the Medicare program and in such State agencies as our own Industrial Commission. The shapes that such schemes will take may well vary; general indorsement of the system is no longer in doubt. The approach of vendor medical payments for the indigent aged is the heart of the Kerr-Mills bill that the AMA and organized medicine in the States supported whole-heartedly in the last Congress. Additionally, any thought that the physician can still perform alone all aspects of medical care has

lost its pertinence. The doctor now gladly recognizes the contributions of the technician, the nurse, the pharmacist, the social worker, the clinical psychologist, and a host of other members of the therapeutic team, no matter how much some may protest that there is a dark plot to grant the physician's prerogatives to these ancillary groups.

Finally it may be said that the preservation of private practice is no longer a primary issue in medicine. This statement will be anathema to some, who would violently insist that the future of the profession rests on society's election of private practice or "socialized medicine." They would contend that only as private practice can medicine conceivably remain progressive and independent. This conviction can be examined to sharpen the query, and an analogy can perhaps be drawn from private financial enterprise. Charles F. Darlington, a business man and corporate executive, formerly assistant chief of the State Department's Division of Trade Agreements, has offered some piercing comments on the latter in a late publication. He notes that, "Nations, like individuals, can make vices of their virtues. Private enterprise is a virtue as a successful method of organizing society for production, but it takes on the color of a vice when, as today in the United States, it is widely regarded as the ideal of society. It is a means to a good society, but we are making it society's goal." These provocative insights can be applied as well to medicine. The goal of the doctor is maximal care for the sick. Private practice is a means to that end. Most of the physicians of this country believe that the present system has provided and will continue to provide unparalleled medical resources and ready access to them. But private practice is not sacrosanct, not an inviolable purpose in itself. If another method of dispensing the fruits of medical science could be shown to be superior, the profession would surely adopt it. We strive for the health of our patients and the cure of their illnesses and not fundamentally for the continuance of a certain economic way of distributing medical services. Individual responsibility is one thing; private practice is another. They are not necessarily synonymous. The American physician is simply unconvinced that current usage has been challenged by any substitute that would do the medical job as well or better and would preserve the integrity of his calling.

These causes have the smell of dead battlefields, and those who carry their banners are shouting their war cries backward down the corridor of medical history. No scientist can cherish more than mere sentimental fondness for outworn dogma, and leading our profession into a rigid identification with political principles that may be tomorrow's anachronisms is not the way to make it a living force in today's society. Nostalgic remembrance of the familiar past should not cloud our responsibility to be realistic about our future.

For medicine too the relevant issue is freedom. Its pursuit is as vital and meaningful for a profession as it is in the larger socio-historical sense or in the definition of national purpose. Indeed, if freedom is in truth the root of national purpose, it cannot help but also be the root of a profession that plays a considerable role in the republic.

Freedom for medicine is of course professional freedom only – freedom to set the standards by which its members shall be judged, freedom to outline the curriculum by which its apprentices shall be taught, freedom to prescribe such treatment as physicians find necessary for the healing of the sick. It does not mean that the unscrupulous and the mercenary can assume with a whoop and a hurrah that the lid is off. It is not license to exploit the public for personal gain through secret remedies, excessive fees, or unnecessary ministrations. There is no liberty to strike against the interests of the sick for reasons of the doctor's economic advantage, or to withdraw from service to the public out of objection to socio-economic trends. Finally, no franchise is included to utilize the prestige of the profession as a partisan political tool in advocacy of any undertakings other than those of medicine itself. These declarations are obviously a restatement of ethical considerations that have long guided professional conduct. None of these forbidden immunities would be regarded as other than preposterous by the honorable physician. One mentions them more for the comfort of the laity than as a necessary reminder to doctors.

Is this a real issue? Is the freedom of medicine actually threatened? I think it may fairly be said that it is, just as the freedom of other

professions and intellectual callings is threatened. Scientists, teachers, journalists, even creative artists have all felt the same cold breath on their backs. Doctors have always been singularly autonomous; they are probably the most completely self-governing segment in a society that is becoming rapidly collectivized. This fact makes them an obvious target.

The first threat to the independence of medicine obviously comes from managerial bureaucracy, which increasingly means political bureaucracy. No belaboring is required to prove the point that the average bureaucrat is not basically concerned with individuals; he is concerned rather with the efficient working of the bureaucracy. He is not interested in research, in scientific progress, probably not in change of any sort, which can only tangle the red tape. He is obsessively addicted to paper work, deadlines, budgets, and protocol. The climate he creates has proved to be very irksome for scientists working for the government. It could only be equally vexing and obstructive for doctors in a federalized medical system. The danger emanates not only from Washington; it can be equally instrusive at a municipal, county, or state level. If anyone needs an object lesson in the menace to medical practice of local governmental bureaucracy let him meditate on the relatively benevolent empire of the Industrial Commission of Arizona. By law this State insurance organization can transfer your patient to another physician, can order consultations or examinations on your patient without requesting your permission or notifying you, even if such procedures might in your judgment be deleterious. It not only has the legal right to do these things; on occasions it does them. It is abundantly clear that the I.C.A. reflects the interests of the employer and the insurance carrier as opposed to the interests of your patient, the sick or injured workman. This occurs without any conspiracy in an agency run by perfectly honest people, doing their very good best, and assisted by committees appointed by your Association, committees of competent and irreproachable physicians. Modern psychiatry vouches for the understanding that none of us is able to abolish unconscious bias. None of us can discount the prospect of unconsciously favoring the viewpoint of the people he works for. The potential is far graver. So far we have been protected by appointments of high caliber to the posts of Commisisoners. The existing set-up could be subverted by various pressures to allow all kinds of abuses, premature closure of cases, cover-ups on lost-time accidents, black-lists of the doctors who are thought to be too "soft" on the injured workman. Fortunately, the day is not yet.

Medical liberty is put in jeopardy in other ways, more indirect and more subtle. There is for example genuine peril in control over professional education through the grants and research assistance that a medical college receives and on which its life depends. This is partly governmental paternalism, partly mothering from the great foundations. It is an endangerment that exists not only for the medical schools but for all branches of the nation's universities, and in fighting which we can join forces with other scientists and with educators. There is the hazard, more hidden still, of conventionality, social, political, academic, even professional. In a delicately balanced age, dependent on technological continuity, rebellion seems so dangerous. Yet medicine, like any science, must reserve its right to slap the face of the axiomatic. Burying the independent and skeptical spirit of experimental discovery under an undisturbed ground of conformity would be the end of what makes human beings human. As Arnold Toynbee has put it, "Mankind's only capital asset is the creative power embodied in individual men and women. Short of genocide, it is hard to think of any worse fate that we could inflict on ourselves than to transform ourselves into human ants or bees." Like any other human endeavor, medicine is under strong pressure to conform to the mores of the time, and the threat of intellectual submission at its worst is made vivid by the perversions of German medicine under Hitler. In fact no scientist can allow himself to be carried away by social or political vogues and especially by currents of intellectual fads. Conformity and non-conformity have no pertinence to the scientific task, and one can be as enslaving as the other. Jean Cocteau has wryly commented, "Le conformisme anticonformiste est á la mode, L'avant garde est devenue le classicisme du vingtiéme siécle." Epigrams are always more impressive in French. You need know little French to decipher this one.

If big government is a threat to the freedom of the physician, so is big business, and so is

big labor. Neither the business man nor the labor executive is solicitous about the liberties of our profession; they are preoccupied with the use of the doctor in furthering their ends in the industrial power struggle, and with gaining kudos and advantage through making medical services available to employees. So far the inevitable loser in every battle has been the private practitioner, whose area of coverage is successively limited. Can the physician be employed by industry or by a major union, or for that matter by government, without losing some of his professional independence? Most physicians are far from convinced. Institutions must be devised that will both fit modern socio-economic realities and yet safeguard medicine's traditional self-reliance. Our first present hope is in wide extension of the health insurance plan. Practical implementation of some such hope is a necessity if we are to maintain professional freedom.

Even though one says it hesitantly, perhaps the doctor's scope is also compromised by "big medicine." In spite of the democratic, representative structure of organized medicine, it is now so immense and complex that the individual member's stand is largely dictated from on high. He is unlikely to make his thoughts known, unlikely indeed to have the facts for a personal formulation. As in every field in modern civilization, in medicine too a few men make the critical decisions, which are then sold to the rank and file. Our professional autonomy has also been narrowed by ancillary groups in medicine, for example by the hospital administrators, who regard us as a necessary but willful set of retainers, to be brought into line on such transgressions as ordering too many laboratory tests. It is equally restricted by the groups concerned with hospital accreditation, who have clearly had large infusions of bureaucratic blood. Our freedom is not limited, as the popular press would recently have it, by a guide rule of rewards and punishments. In fact these accounts of the power structure of medicine are fantastic to the point of paranoia. Rather are we endangered through relinquishment of personal control over certain faces of our destinies. We can regain that control only through awareness of its seepage and through plugging the leaks by unremitting participation in the social and political and educational aspects of medicine as well as in its scientific and clinical phases.

One last word on the immediate apprehension of the average physician, the threat to his practice by government payment for medical care. There is widespread public misapprehension that doctors oppose state financing mainly because they feel that it would reduce their personal incomes. This surmise is the principal source of the fading of the doctor's image, and it is not to be met by still further economic and political broadsides from the upper brass of national medicine. Rather do our fellow citizens have a right to our legitimate opinion. In even the crustiest reaches of conservative medical thought there is no doubt about the physician's real misgiving, that his authority over his purely professional responsibilities will be removed by state control. He fears that government financing means government interference. He asks to be shown how it cannot. This simply is his real concern. And it is one that the public will understand.

What is medicine's program to counter these threats? What are the affirmations through which doctors can guarantee their professional freedom, preserve it and enlarge it? First, they must take an unmistakable stand on the principles that cannot be relinquished if their calling is to remain true to its social charge. These include general supervision of the content of medical education and the right to set the criteria by which doctors shall be evaluated. Neither of these principles can conceivably be delegated to a lay group. Third, there must always be the privilege of choice of the profession and no barrier to entrance of the best young minds that it can attract. There must be no state dictation of which young people will go into medicine and which into other vocations. Nor should there be sorting by status standards of any sort – money, social class, religion, color, or political belief. Fourth and imperative, we can never resign our primary responsibility for the patient. Whoever may pay for his care, his health is the doctor's commission alone and his recovery from illness the doctor's task.

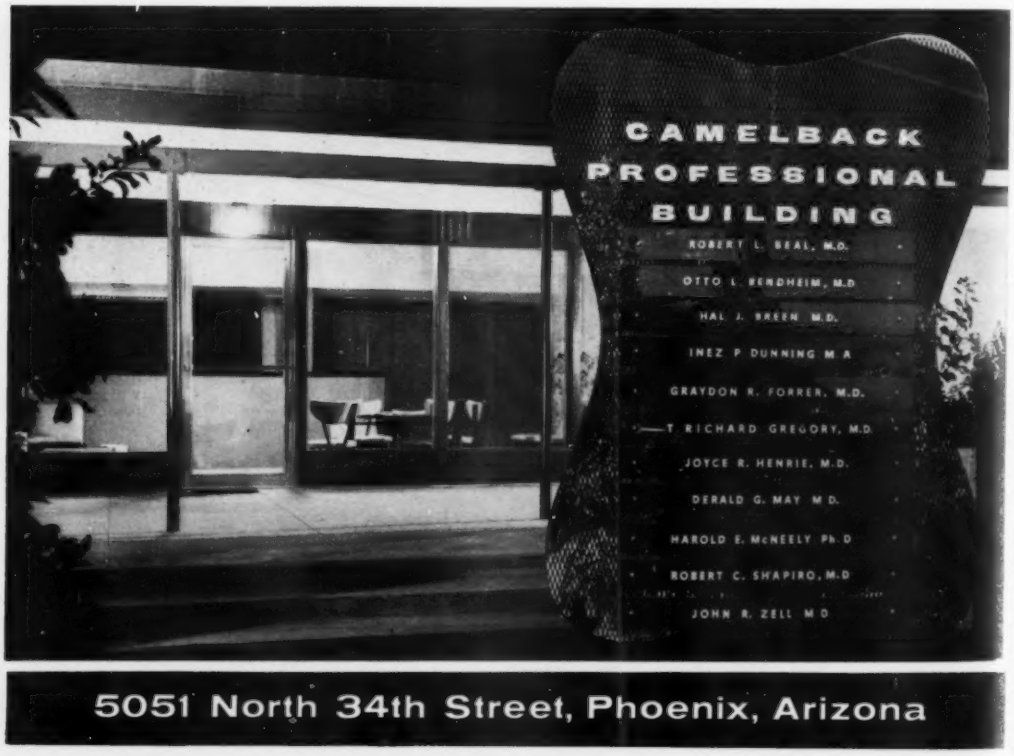
It does not seem unreasonable, in connection with the voicing of these precepts, to ask that society go slowly in changing what has worked so well and not jettison a system that has been a pragmatic success. This is not a plea for hide-

bound following of the beaten track. Medicine is always eager to try new treatments; it should be equally willing to consider fresh ways of bringing optimum care to all the sick. It does ask that any new social approach not destroy or dilute the very elements that have accounted for the excellence and progress of medical science in the modern era.

We should not confuse our point by longer beating the drums of the irrelevant, by attempting to make new cases out of settled disputes. We should keep our eyes fixed on the great issue, our professional freedom, our scientific and intellectual independence. Winston Churchill once said of Harry Hopkins that his great contribution to Allied strategy in World War II was his ability to see into the heart of any question. "Lord Root of the Matter," Churchill called him. It is this penetration that medicine needs.

Our defense of our ideals and our probity demand that we speak up, as individuals and as professional groups. This means that we say our honest piece without equivocation in our own medical assemblies. It means that we declare ourselves strongly in legislative halls. It means that we acquaint politicians with the effect on medicine and on the public health of proposed modifications of economic or social patterns. It means finally that we enter the common forum. Our fellow citiens cannot be expected to help us champion the integrity of medicine unless we inform them.

Whatever we do, whatever we say, let it radiate from the relevant issue, the freedom of medicine to serve the health of the people. And let us repeat that we seek this freedom for the protection of our patients and not for the preservation of a personal economic position. It says in Ecclesiastes, "To every thing there is a season, and a time to every purpose under the sun." This is the season to recognize that the meaningful need of medicine is the sustenance of its professional freedom. And this is the time to make clear that our purposes are the health of mankind and the morality of our science.



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DUKE R. GASKINS, M.D.
MEDICAL DIRECTOR

February 1, 1961

Dear Doctor:

At about this time we can anticipate a drive for Social Security financing or Old Age Medical Care. Apparently congressional leaders have agreed not to push to hard for civil rights legislation in exchange for quick approval of several of President Kennedy's "hurry-up" programs including the Social Security Old Age Medical Care Bill.

We should remember that Social Security is not insurance and in arguments before the Supreme Court it was admitted by OASI that Social Security is just another tax.

The Social Security program now has $20-billion in assets and $360-billion in assumed obligations. Apparently this is going to have to be paid by future generations and adding Old Age Medical Care to these future obligations hardly makes sense. It seems like a dirty trick to play on our children, but it is apparently considered good politics.

Very truly yours,

Duke R. Gaskins

Duke R. Gaskins, M.D.
Medical Director

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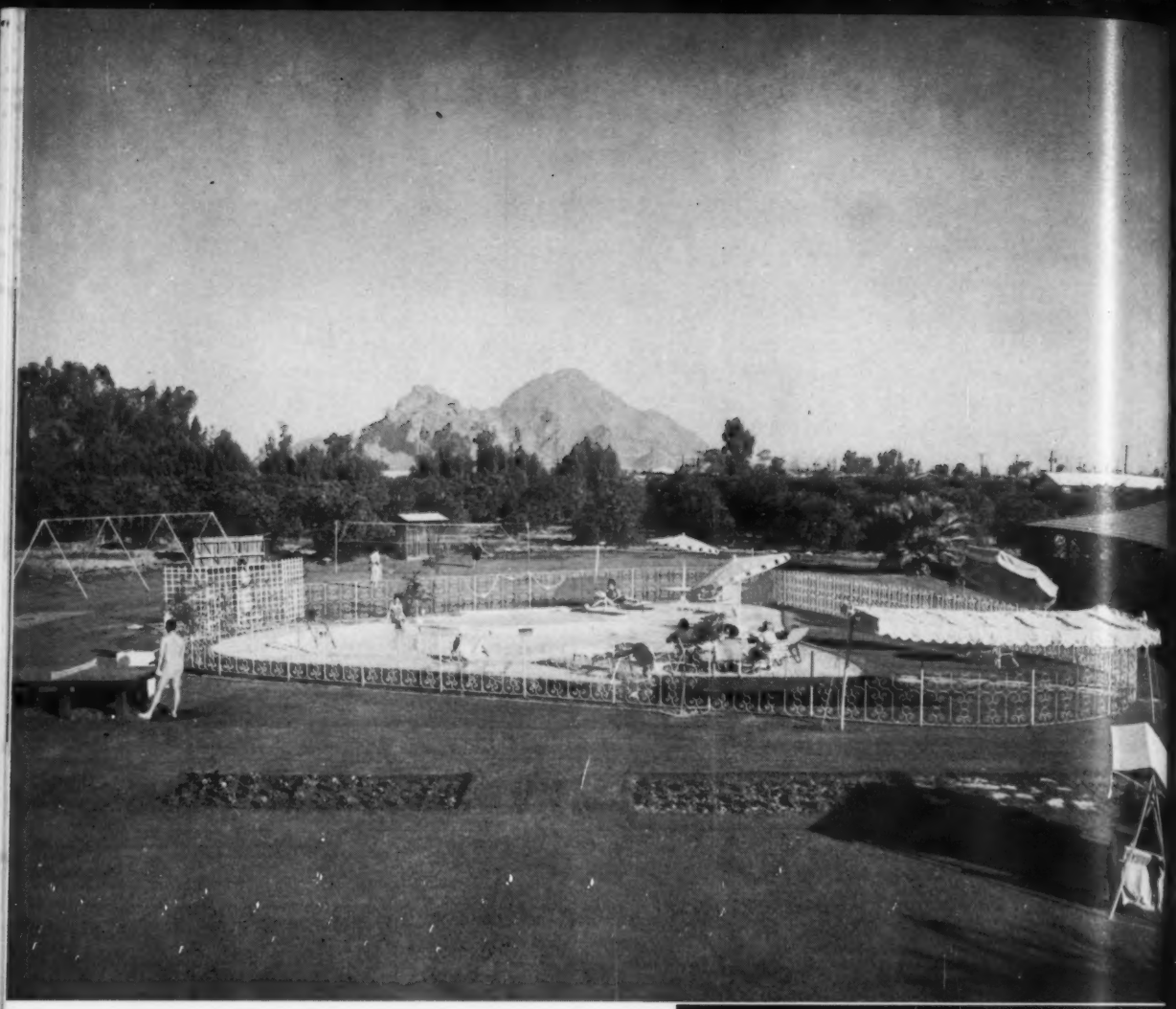

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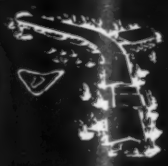

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STAPHCILLIN™

(sodium dimethoxyphenyl penicillin)

For Injection

DESCRIPTION

STAPHCILLIN is a unique new synthetic parenteral penicillin produced by Bristol Laboratories for the specific treatment of staphylococcal infections due to resistant organisms. Its uniqueness resides in its property of resisting inactivation by staphylococcal penicillinase. It is active against strains of staphylococci which are resistant to other penicillins.

Each dry filled vial contains: 1 Gm. STAPHCILLIN (sodium dimethoxyphenyl penicillin), equivalent to 900 mg. dimethoxyphenyl penicillin activity.

INDICATIONS

STAPHCILLIN is recommended as specific therapy only in infections due to strains of staphylococci resistant to other penicillins, e.g.:

Skin and soft tissue infections: cellulitis, wound infections, carbuncles, pyoderma, furunculosis, lymphangitis and lymphadenitis.

Respiratory infections: staphylococcal lobar or bronchopneumonia, and lung abscesses combined with indicated surgical treatment.

Other infections: staphylococcal septicemia, bacteremia, acute or subacute endocarditis, acute osteomyelitis and enterocolitis.

Infections due to penicillin-sensitive staphylococci, streptococci, pneumococci and gonococci should be treated with Syncillin® or parenteral penicillin G rather than STAPHCILLIN. Treponemal infections should be treated with parenteral penicillin G.

DOSAGE AND ADMINISTRATION

STAPHCILLIN is well tolerated when given by deep intragluteal or intravenous injection.

As is the case with other antibiotics, the duration of therapy should be determined by the clinical and bacteriological response of the patient. Therapy should be continued for at least 48 hours after the patient has become afebrile, asymptomatic and cultures are negative. The usual duration has been 5-7 days.

Intramuscular route: The usual adult dose is 1 Gm. every 4 or 6 hours. Infants' and children's dosage is 25 mg. per Kg. (approximately 12 mg. per pound) every 6 hours.

Intravenous route: 1 Gm. every 6 hours using 50 ml. of sterile saline solution at the rate of 10 ml. per minute.

**Warning:* Solutions of STAPHCILLIN and kanamycin should not be mixed, as they rapidly inactivate each other. Data on the results of mixing STAPHCILLIN with other antibiotics are being accumulated.

DIRECTIONS FOR RECONSTITUTION

Add 1.5 ml. sterile distilled water or normal saline to a 1 Gm. vial and shake vigorously. Withdraw the clear, reconstituted solution (2.0 ml.) into a syringe and inject. The reconstituted solution contains 500 mg. of STAPHCILLIN per ml. Reconstituted solutions are stable for 24 hours under refrigeration.

For intravenous use, dilute the reconstituted dose in 50 ml. of sterile saline and inject at the rate of 10 ml. per minute.

*This statement supersedes that in the Official Package Circulars dated September and/or October, 1960.

(continued)

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MICROBIOLOGICAL AND PHARMACOLOGICAL PROPERTIES

In vitro studies show that STAPHCILLIN is a bactericidal penicillin with activity against staphylococci resistant to penicillin G. Strains of staphylococci so far tested have been sensitive to STAPHCILLIN *in vitro* at concentrations of 1-6 mcg. per ml. These levels are readily attained in the blood and tissues by administration of STAPHCILLIN at the recommended dosage. This unique attribute is probably due to the fact that STAPHCILLIN is stable in the presence of staphylococcal penicillinase. STAPHCILLIN also resists degradation by *B. cereus* penicillinase. The antimicrobial spectrum of STAPHCILLIN with regard to other microorganisms is qualitatively similar to that of penicillin G; but considerably higher concentrations of STAPHCILLIN are required for bactericidal activity than is the case with penicillin G.

STAPHCILLIN is rapidly absorbed after intramuscular injection. Peak blood levels (6-10 mcg./ml. on the average after a 1.0 Gm. dose) are attained within 1 hour; and then progressively decline to less than 1 mcg. over a 4 to 6 hour period. It is poorly absorbed from the gastrointestinal tract. STAPHCILLIN is rapidly excreted by the kidney.

As shown by animal studies, STAPHCILLIN is readily distributed in body tissues after intramuscular injection. Of the tissues studied, highest concentrations are reached in the kidney, liver, heart and lung in that order; the spleen and muscles show lower concentrations of the antibiotic. STAPHCILLIN diffuses into human pleural and prostatic fluids, but its diffusion into the spinal fluid has not yet been completely studied. However, one patient with meningitis showed a significant concentration in his spinal fluid while on STAPHCILLIN therapy.

Toxicity studies with STAPHCILLIN and penicillin G in animals show that they have approximately the same low order of toxicity.

Certain staphylococci can be made resistant to STAPHCILLIN in the laboratory, but this resistance is not related to their penicillinase production. During the clinical trials, no STAPHCILLIN-resistant strains of staphylococci were observed or developed; the possibility of the emergence of such strains in the clinical setting awaits further observation.

PRECAUTIONS

During the clinical trials, several mild skin reactions, e.g., itching, papular eruption and erythema were observed both during and after discontinuance of STAPHCILLIN therapy. Patients with histories of hay fever, asthma, urticaria and previous sensitivity to penicillin are more likely to react adversely to the penicillins. It is important that the possibility of penicillin anaphylaxis be kept in mind. Epinephrine and the usual adjuvants (antihistamines, corticosteroids) should be available for emergency treatment. Because of the resistance of STAPHCILLIN to destruction by penicillinase, parenteral *B. cereus* penicillinase may not be effective for the treatment of allergic reactions. Information with regard to cross-allergenicity between penicillin G, penicillin V, phenethicillin (Syncillin) and STAPHCILLIN is not available at present. If superinfection due to Gram-negative organisms or fungi occurs during STAPHCILLIN therapy, appropriate measures should be taken.

SUPPLY

List 79502 — 1.0 Gm. dry filled vial.

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NEW SYNTHETIC PENICILLIN FOR "RESISTANT" STAPH

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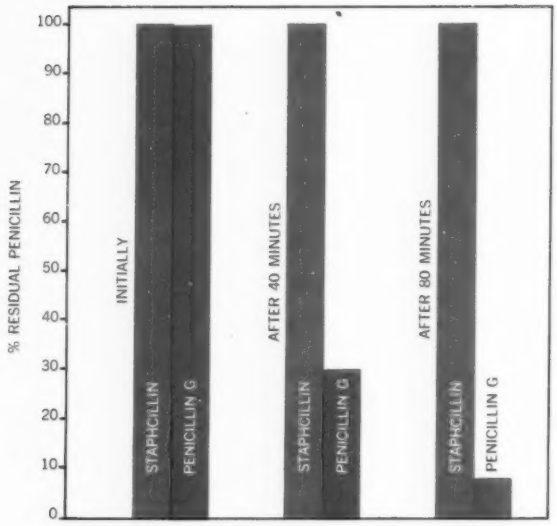
UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN



In the presence of staphylococcal penicillinase, STAPHCILLIN remained active and retained its antibacterial action. By contrast, penicillin G was rapidly destroyed in the same period of time. *(After Gourevitch et al., to be published)*

Specifically for "resistant" staph...

Staphcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

The failure of staphylococcal infections to respond to penicillin therapy is attributed to the penicillin-destroying enzyme, penicillinase, produced by the invading staphylococcus.

Unlike other penicillins:

1 STAPHCILLIN is effective because it retains its antibacterial activity despite the presence of staphylococcal penicillinase.

2 The clinical effectiveness of STAPHCILLIN has been confirmed by dramatic results in a wide variety of infections due to "resistant" staphylococci, many of which were serious and life-threatening.

Like other penicillins:

STAPHCILLIN has no significant systemic toxicity. It is well tolerated locally, and pain or irritation at the injection site is comparable to that following the injection of penicillin G. *In occasional cases, typical penicillin reactions may be experienced.*

PROFESSIONAL INFORMATION SERVICE – The attached Official Package Circular provides complete information on the indications, dosage, and precautions for the use of STAPHCILLIN. If you desire additional information concerning clinical experiences with STAPHCILLIN, the Medical Department of Bristol Laboratories is at your service. You may direct your inquiries via collect telephone call to New York, PLaza 7-7061, or by mail to Medical Department, Bristol Laboratories, 630 Fifth Ave., N. Y. 20, N. Y.

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When it's more like "grippe" or

"flu" than a simple cold, but an antibiotic is not indicated... prescribe NEW WIN-CODIN* Tablets

New Win-Codin tablets provide greater symptomatic relief from influenza, colds and sinusitis than do simple analgesic-antihistamine combinations. New Win-Codin tablets contain a full complement of the most effective agents available to relieve general discomfort, bring down fever and lessen congestive symptoms.

Each tablet contains:

Codeine phosphate 15 mg.—to relieve local and generalized pain and control dry cough

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Acetylsalicyclic acid 300 mg. (5 grains)—to reduce fever and relieve aching

Chlorpheniramine maleate 2 mg.—an antihistamine to shrink engorged membranes and lessen rhinorrhea

Ascorbic acid (vitamin C) 50 mg.—to increase resistance to infections†

New Win-Codin tablets will bring more comfort to many patients suffering from severe colds, influenza or sinusitis.

Average dose: Adults, 1 or 2 tablets three times daily; children 6 to 12 years, from ½ to 1 tablet three times daily.

Available in bottles of 100 (Class B narcotic).

*Trademark †For persons with vitamin C deficiency
Neo-Synephrine (brand of phenylephrine), trademark reg. U. S. Pat. Off.

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Editorial

Neurotic Reaction

Disabling accidents result in some sufferings about which the physician or psychiatrist cannot testify as an expert. I am referring to areas of ordinary human experiences: anxiety over reduced income, fear of being replaced on the job, hope for sizeable indemnification, backwash of problems usually warded off by gainful occupation. Worry and unhappiness and angry disappointment are to some extent normal and inescapable.

Distress is not a disease if it is proportionate to the distressing situation.

If the distress is disproportionate it may be the symptom of a psychoneurosis. But it is the

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AND

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CONTRIBUTIONS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules should be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English or Spanish, especially with regard to construction, diction, spelling and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Be brief, even while being thorough and complete. Avoid unnecessary words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
6. Exclusive Publication — Articles are accepted for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
7. Reprints will be supplied to the author at printing cost.

(The opinions expressed in the original contributions do not necessarily express the opinion of the Editorial Board.)

neurosis that causes the extraordinary distress, not the distress that causes the neurosis.

A psychoneurosis is *not* a result of stressful circumstances. The circumstances (injury, treatment, compensation) provide the conditions in which the individual reacts but not the causes of his reaction. The normal person reacts normally. The psychoneurotic reacts neurotically.

And the psychoneurosis is *not* a way of reacting to a stressful situation. A psychoneurosis is a reaction to a conflict of interest in a stressful situation. The cause of the neurosis, the necessary and sufficient and invariable factor, is the conflict of interests. Explicit in the definition of neurosis, of course, is that part of the conflict (the inadmissible wish or motive) is blocked from consciousness and is finding disguised or symbolic expression in the distressing symptoms. W. B. McG.

CHLORAMPHENICOL

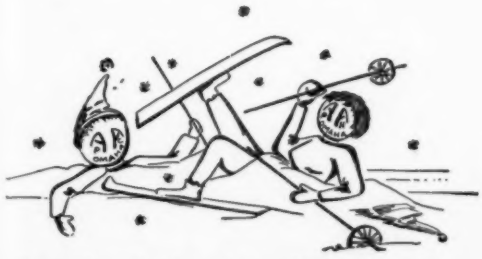
William Dameshek, in the December 3, 1960 issue of the J.A.M.A., so clearly again gives us a warning on Chloramphenicol. We encourage you to re-read this specific warning as it appears on page 1853 pointing out the necessity of limiting this drug to *impelling circumstances*, for this is not only a potent antibiotic but also an antimetabolite.

CANCER

The Fourth National Cancer Conference showed us that the door is opening, so slightly, in the fields of virology, immunology, genetics and chemotherapy in the treatment of cancer. As much as can be hoped for in these fields, we are still failing as a profession to adequately warn and protect our patients in areas where knowledge now seems to be irrefutable.

The success of the Papanicolaou slide and the evidence of the damage of cigarette smoking necessitate that we properly advise our patients. Every woman over the age of 38 should receive yearly vaginal smears and Papanicolaou studies. Smoking should be discouraged.

The statistical evidence is overwhelming, but our advice can only be heeded if we follow it ourselves.



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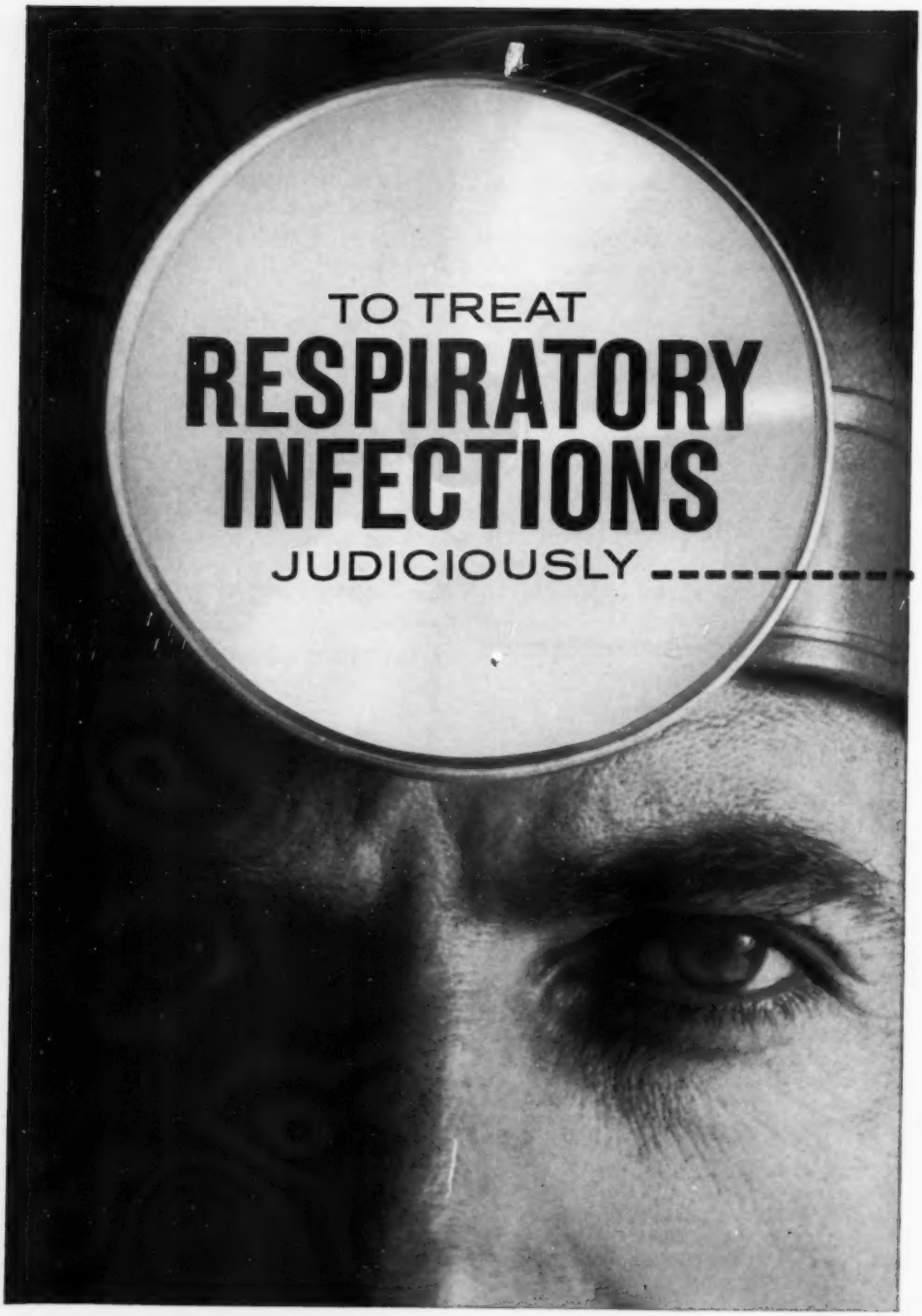
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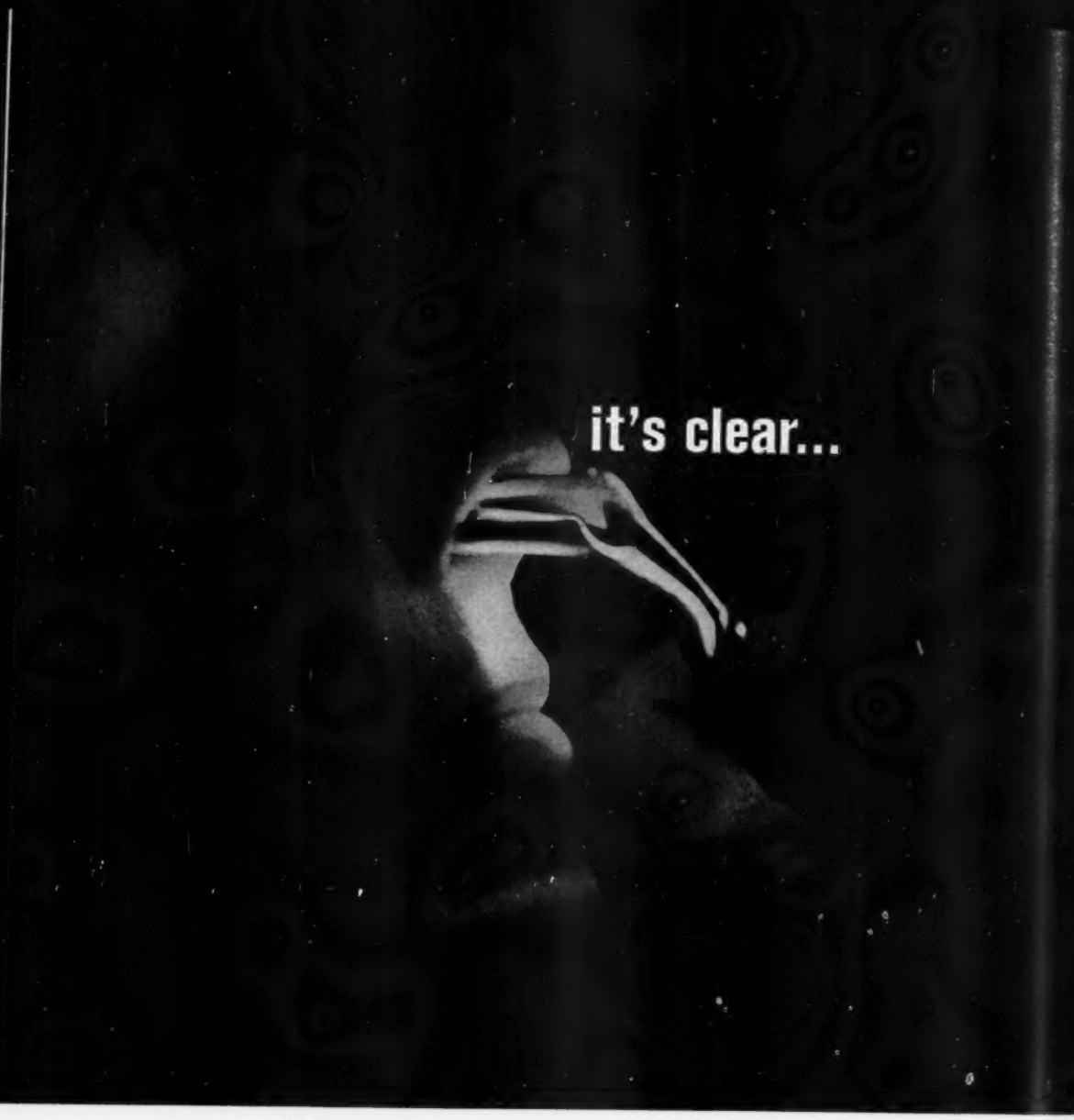

in sinusitis, colds and upper respiratory disorders

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In sinusitis, colds and other upper respiratory and allergic disorders, new DIMETAPP Extentabs offer more useful decongestant therapy. Stuffiness, drip and other annoying symptoms of congestion are effectively relieved with minimum side effects.

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DIMETAPP Extentabs contain Dimetane® (parabromdylamine [brompheniramine] maleate) 12 mg., phenylephrine HCl 15 mg., and phenylpropanolamine HCl 15 mg. Dependable Extentabs construction assures relief of symptoms for up to 12 hours with 1 tablet.

Dosage: Adults—1 Extentab q. 8-12 hours. Children over 6—1 Extentab q. 12 hours. Administer with caution to patients with cardiac or peripheral vascular diseases and hypertension, and to those sensitive to antihistamines. See package insert for further details. **Supplied:** bottles of 100 and 500.
*Full bibliography on Dimetane available on request.

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1. simple dosage schedule produces rapid, reliable tranquilization without unpredictable excitation
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Usual dosage: One or two 400 mg. tablets t.i.d.
Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets.
Also as MEPROTABS® — 400 mg. *unmarked,* coated tablets; and as MEPROSPAN® — 400 mg. and 200 mg. *continuous release* capsules.

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The reasons are not hard to find. Miltown is a ***known*** drug. Its few side effects have been fully reported. ***There are no surprises in store for either the patient or the physician.***

NEW analgesic

Kills pain

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For neuralgias, dysmenorrhea, upper respiratory distress, postsurgical conditions... new compound kills pain, stops tension, reduces fever—gives more complete relief than other analgesics.

Soma Compound is an entirely new, totally different analgesic combination that contains three drugs. First, Soma: a new type of analgesic that has proved to be highly effective in relieving both pain and tension.* Second, phenacetin: a "standard" analgesic and antipyretic. Third, caffeine: a safe, mild stimulant for elevation of mood. As a result, the patient gets more complete relief than he does with other analgesics.

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Dosage: 1 or 2 tablets q.i.d.
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Dosage: 1 or 2 tablets q.i.d.
Supplied: Bottles of 50 white, lozenge-shaped tablets; subject to Federal Narcotics Regulations.

References available on request.

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In Memoriam

Myron G. Wright, M.D.

1893 – 1960

Myron G. Wright passed away September 13, 1960. On December 23, 1958 he had an accident and suffered a spinal injury. Due to this accident he was totally disabled until his death.

He was born in Morning Sun, Ohio on January 13, 1893. Father and Mother deceased.

He began his education in Ohio and completed it, along with his medical training, in Colorado.

Sports – played Basketball and Football in High School and College.

He received his degree of Bachelor of Arts at the University of Colorado. In 1917, the University School of Medicine awarded him the degree of Doctor of Medicine. He interned at Mercy Hospital.

In 1917 he was commissioned in the United States Navy Medical Corps, with which he served through the end of World War I and into 1920. He was released to inactive status with the rank of lieutenant senior grade. Returning to Denver in 1920, he served on the staff of the Fitzsimons Veterans Administration Hospital until the end of 1921. At that time he began practice in Denver.

Myron G. Wright, M.D.

In 1929, Dr. Wright came to Arizona, and on July 1 of that year began practice in Phoenix. On July 8, 1930, he moved to Winslow, where he spent more than a quarter of a century. He built the first hospital in Winslow. In 1945 he

built The Nancy Wright Clinic and dedicated it to his mother.

In addition to his private clientele, Dr. Wright served for more than twenty years as County Physician and served the Atchinson Topeka and Santa Fe Railroad as consulting surgeon, in the Winslow Division from 1937 to 1958, the year of his accident. He was president of the staff of the Winslow Memorial Hospital. He was a member of the American Society of Abdominal Surgeons, Arizona Medical Association, American Medical Association, Southwestern Obstetrical and Gynecological Society, American Academy of General Practitioners, and was a Fellow of the International Society of Medicine. He was a member of Omega Upsilon Phi medical fraternity.

He was a member of numerous bodies of the Masonic order, including all those of the York Rite and El Zaribah Temple, Ancient Arabic Order of Nobles of the Mystic Shrine.

He was active in the Winslow Chamber of Commerce and was a lifetime member of the Winslow Lodge, Benevolent and Protective Order of Elks. He was also an officer in Charles Hathaway Post of the Veterans of Foreign Wars and a member of the American Legion.

He was of the Baptist Faith and voted the Republican ticket.

Dr. Wright was a skilled Physician and Surgeon, and a kind hearted man. He was a friend to everybody, regardless of color or creed.

He put two doctors through Medical School; one of those doctors he helped through high school and college. There were other doctors he helped to get started on their own. Today there are people in Winslow who are in business with the help of Dr. Wright. People from all the surrounding communities came to him. Indians from the Reservations travelled by horse and wagon even though they had their own doctors and hospital, many preferred to come to him. Dr. Wright was kind and understanding of them though very few could pay him. These Indian people loved the doctor and in their own way they tried to show their appreciation.

NATION'S PHYSICIANS TO GET WEEKLY MEDICAL NEWS REVIEW OVER REGULAR TV CHANNELS

A weekly review of medical news for physicians, using regular commercial television channels, will go on the air October 30 over a nationwide network, it was announced by Medical News Inc. of New York City.

The fifteen-minute program, "This Week in Medicine," will be broadcast on Sunday afternoons. The selection of the broadcast time was based on preferences expressed by physicians in cities where the program was tested with the cooperation of county medical societies.

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In Lanesta Gel *7-chloro-4-indanol,* a new, effective, nonirritating, nonallergenic spermicide, produces immediate immobilization of spermatozoa in dilution of up to 1:4,000. The addition of 10 per cent NaCl in ionic form greatly accelerates spermicidal action. Ricinoleic acid facilitates rapid inactivation and immobilization of spermatozoa and sodium lauryl sulfate acts as a dispersing agent and spermicidal detergent.

Lanesta Gel with a diaphragm provides one of the most effective means of conception control. However, whether used with or without a diaphragm, the patient and you, doctor, can be certain that Lanesta Gel provides faster spermicidal action — plus essential diffusion and retention of the spermicidal agents in a position where they can act upon the spermatozoa.

new Lanesta® Gel

Supplied: Lanesta Exquiset® . . . with diaphragm of prescribed size and type; universal introducer; Lanesta Gel, 3 oz. tube, with easy clean applicator, in an attractive purse. Lanesta Gel, 3 oz. tube with applicator; 3 oz. refill tube — available at all pharmacies.

A product of Lanteen® research.

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Topics of Current Medical Interest

Review of the Proposal for A New Tuberculosis Sanatorium In Tempe

Dermont W. Melick, M.D.

Phoenix, Arizona

On December 18, 1960, there appeared before the Board of Directors of the Arizona Medical Association, a group of individuals to speak in favor of the new tuberculosis hospital, now being contemplated for construction at Tempe, Arizona. Dr. Derrill Manley, a pediatrician, presented facts and figures, plus his personal opinion and experience, with regards to tuberculosis in children. Dr. Walter Brazie, as chairman of the State Board of Health, presented his interpretation of the recommendations as he has derived them from Dr. Clarence Salsbury, Commissioner of the State Health Department. In his presentation he also spoke knowingly from an experience of many years as a general practitioner in the City of Kingman, Arizona. Dr. Lloyd K. Swasey, Chief of Staff of the Arizona Tuberculosis Sanatorium, outlined in detail the thinking and recommendations of those individuals who take care of the medical and surgical needs of the tuberculous patients at the Arizona Tuberculosis Sanatorium.

After the presentations by these individuals a question and answer period was carried on at some length in order to elaborate on whatever may not have been made clear by the presentation. Thereafter the Board of Directors went into closed session for further discussion. A vote was then taken and the Board of Directors, acting in the name of the members of the Arizona Medical Association, went on record with the following resolution: "That we (the Association) go on record approving the building of a new tuberculosis hospital or hospitals; and that we instruct our Legislative Committee to make it a very high priority health program in the next year."

This paper is to inform the membership of the Arizona Medical Association about the foregoing action. Also, it is an appeal to the physicians and surgeons of the State of Arizona to back up the action of the Board of Directors of The Arizona Medical Association in the fullest meaning of the word. There may be questions which will arise in the minds of the membership of this association with regards to the proposed new tuberculosis hospital. What I have to relate to you hereafter, may resolve some of them. I also expect some consternation in the minds of some of my good colleagues.

If you will recall the year 1949, you may remember that the House of Representatives and the Arizona State Senate passed a bill allocating $750,000.00 for construction of a Tuberculosis Sanatorium at Tempe. You may also recall that the bill was vetoed by the then incumbent Governor, (may his conscience rest in peace). It was stated at that time that the tuberculosis problem in Arizona would never be solved by legislation because of the inability to *resolve differences* of opinion, friction between doctors, and an incompatability of the interpretation of the statistics originating in the State Health Department. There seemed to be radi-

ally divergent opinions between members of our own profession. This is to say nothing about individuals on the outside of the profession who seemed to know more about public health and tuberculosis than any expert then extant. It was stated that the tuberculosis problem would be solved by evolution alone. I would submit to you that in the interim of eleven years this evolution has taken place. We have now graduated to the proving ground and confidently expect to demonstrate that legislation and evolution are now compatible. We can solve our tuberculosis problem if we will dedicate ourselves and put forth a combined effort behind a big push.

The tuberculosis problem is with us. It will remain with us until we, as an association, and each one of us as individuals, make up our collective and individual minds to solve it to the best of our abilities. At this particular writing the legislature of the State of Arizona is in a receptive mood to listen to individuals of good conscience and straightforward honesty. If these individuals are forthcoming, cooperation by the legislature can be expected. To be able to present this attitude in a deliberate and incontrovertible manner means that the members of the Arizona Medical Association must have facts in hand. They must be willing to stand up and be counted. The members of our legislature are good men and women; honest, conscientious; and hardworking. What we say to them must be said with conviction, cohesiveness, and dedication of purpose.

If we as physicians and surgeons are to carry out our reputed aim in life then tuberculosis in the State of Arizona offers us one of our brightest and greatest opportunities.

I have not spoken here in specifics but I would now *like to* plunge you to the center of the problem by stating that the one over-all best solution of the tuberculosis problem would be a new two hundred bed sanatorium. The estimated total cost of this new facility would be $3,229,480.00. I am sure that your reaction at this juncture is exactly like mine. When I read this figure my reaction was a double take and a retreat in defeat. Any exclamations you may make will not have been any louder than those that I made. Keep in mind however that there has been allocated Federal Funds amounting to $500,000.00. The Legislature has already appropriated $50,000.00 as a "declaration of intent." If the State of Arizona is to take advantage of the Federal allocation the legislature must, in a minimum effort, place $500,000.00 "on the line" in addition to the $50,000.00 it has already appropriated. This would find the total cost estimate for the sanatorium to still be short by $2,179,480.00. This is a tremendous sum of money. You and I know the legislature has other responsibilities to other institutions in this State. We as physicians can expect to be asked HOW BIG is the tuberculosis problem and what do we advocate as the BEST SOLUTION within keeping of the legislative responsibilities regarding the distribution of the tax dollar??? When this question comes up you and I must get down to basic specifics. We must labor in the framework between the most practical and economical best solution, in contradistinction to what might be termed the ideal solution at the "pinnacle of hopefulness." Basically, the evidence is incontrovertible that the present tuberculosis sanatorium is a decrepit, motheaten, decaying old structure which at its honorable best only is a glorified fire trap. It must be replaced. I think it is safe to say that legislators who have made personal visits to the sanatorium will agree with this statement 100%. If this is a basic agreement among the majority of the members of the Legislature then it is up to the physicians and surgeons to justify how many beds the sanatorium should have. It is the combined thinking of a number of well informed individuals that I now pass along to you. The basic, bonebare requirements for a new tuberculosis hospital is 120 beds. This for adults alone. Dr. Derrill Manley presented statistics to prove beyond a shadow of a doubt that childhood tuberbulosis represents a stinking cesspool which can only be eradicated by providing an additional forty beds. To those who would now retreat into the time-worn cave of "lies, damn lies and statistics" I submit a word of warning. Remember that to dispute certain statistics would be to controvert the *recorded* fact of *your own* paternity. If anyone would really like to go to bat about statistics please remember all of us for years have leaned heavily on this science. See editorial in *Science* for December 1960 "The Unwarranted Disparagement of Statistics". Dr. Manley is willing to stand up and fight for his statistics. *Beware of the idle remark that*

destroys by innuendo.!!!

We could stop here and declare to one and all that this marks the final conclusion and draw a line of no retreat. We could state that our tuberculosis problem can be solved adequately and forever by importuning the Legislature to build these 160 beds for the care of tuberculosis in adults and children. It might actually be well for us to rest on our oars and hope the Legislature would accede to our opinions and conclusions. In your own mind you can arrive at some figure less than $3,000,000.00, and surely more than $1,000,000.00, in order to get the job done. HOWEVER –

You will recall that earlier in this dissertation I stated that for the over-all best solution it might be wise for us to build a 200 bed hospital. Let me go into the thinking behind this statement. This concerns a service that would be of great advantage to all of the doctors in the State. I am stating it now for your consideration and digestion. As you know (I hope!) the State Tuberculosis Sanatorium at Tempe has a "screening board." This screening board has the responsibility of reviewing all applications and determining whether or not the individual shall be admitted or rejected. You may be surprised to know this screening board has been belabored by some individuals throughout the State as arbitrary, dictatorial, and uncooperative. When in the general practice of medicine in Williams, Arizona, in 1938, I had the exact same opinion. I so expressed myself. I found it impossible to get the screening board to accept a patient with *far advanced pulmonary tuberculosis.* He was living in a hovel with ten other members of his family among which were five small children. It seemed a tragedy to me and a dereliction of responsibility of the screening board for him to be excluded from the very place where the public health authorities had led me to believe that tuberculous patients were cared for. And there was certainly no place in Williams, Arizona, for the care of an acute active case of tuberculosis. The tragedy continued as you might have surmised. This man, at my direction, went through the motions of isolation from his family. Just how do you isolate one man in a two room shack wherein reside ten other people?? I rest my case. The screening board received the brunt of my irate dissatisfaction. I am now on the receiving end as a member of this screening board. As usual there are two sides to this story. The screening board has often refused cases classified as "not treatable." The individual physician in the outlying community does not look with favor on such refusal. The greater number of communities obviously cannot afford, and therefore do not have, any way of caring for an active case of pulmonary tuberculosis. The problem is nevertheless tossed back into the lap of the local physician. He thereafter looks with a jaundiced eye not only upon the screening board but specifically on the State Health Department. The screening board has had to refuse some cases because the diagnosis is not obvious. The local physician may make a presumptive diagnosis *but the screening board needs a proven positive diagnosis.* In this particular instance the local physician is again rebuffed. His blood pressure rises high and his coronaries receive another insult. And all of it is so unnecessary! He has less justification for dissatisfaction than the doctor in the first instance but both have legitimate gripes. Furthermore the screening board has in more than one instance experienced the uncomfortable sensation of political pressure. A physician (or some of his well intentioned community leaders) will come upon a patient that he (or they) decide must be hospitalized, screening board or no. A request for intercession is made to the Governor. The good Governor responds and arranges to have the patient hospitalized at the sanatorium. The patient arrives on the doorstep of the sanatorium and is tossed gently but firmly upon the desk of the administrator. This political gambit may result in the doctor being satisfied, the community leaders being satisfied and the Governor being satisfied. It certainly creates one big mess, to put it mildly. We have found this political deliverance of the patient often compounded by other considerations. The patient may not have tuberculosis! We then sit with a patient who is not only a political hot potato but he is also running the risk of contracting tuberculosis. One begins to wonder what legal responsibilities the sanatorium has in a case like this should the patient make claim against the state for infection with tuberculosis. This problem fortunately does not show up too often. It has happened, however. I see no reason why it should not happen again *in the future human nature being what it is.* It does point up the need for beds

in some state institution (and we are proposing that it be an adjunct to the tuberculosis hospital) in order to provide diagnostic services to the physicians and surgeons of the State. This would give the physicians a service they can and should have. If we are of a mind to accept this then we can quite readily justify another twenty beds. Our estimate on bed capacity has now reached 180.

Now for the final twenty beds *in order to reach* the "pinnacle of hopefulness," i.e. 200 beds. In the past year you have read and heard a good deal of shooting about the responsibility of the physicians and the governmental powers that be, either local or federal, to our senior citizens. I can assure you that no one of us, or for that matter, any one group of experts, comes forward as a final authority in geriatrics. We cannot pinpoint what we should be doing about it from either an acute or chronic care standpoint. I do believe however, that it is obvious to any thinking individual that we are faced with a responsibility to our elderly people. It is high time we started doing something about it. As far as "doing something" in this particular instance is concerned it has been suggested that twenty beds specifically reserved for acute medical and surgical geriatrics would be a minimal need for the State of Arizona.

In conclusion therefore, the "pinnacle of hopefulness" ideal for the new sanatorium at Tempe is as follows:

120 beds for adult tuberculosis
40 beds for childhood tuberculosis
20 beds for diagnostic services for the physicians in the outlying areas of Arizona
20 beds for geriatrics (acute medical and surgical problems of the aged)

Whether or not the legislature will look with favor on the suggestion for a 200 bed hospital remains for them to decide and for us to guide them. I would call to your attention that within the framework of this two-hundred bed estimate there is a good deal of room for manoeuvring of a kind that will allow us to do something of a constructive nature in the eradication of tuberculosis from the State of Arizona. We may be presented with the first real, solid opportunity to be of service to the people of our state. We can and should do it within the ability of the State of Arizona to carry the financial burden. If we recognize this and the Legislature recognizes this, how can we fail????

RESOLUTION — PIMA COUNTY MEDICAL SOCIETY*

A resolution from the Pima County Medical Society for consideration of the Board of Directors of the Arizona Medical Association and its Committee on Legislation in an effort to clarify the tuberculosis problem in the state of Arizona:

Whereas we recognize the fact that tuberculosis is one of the major medical problems and that every effort should be made to control and eradicate the disease, and

Whereas we believe the problem should be taken care of in each county as far as possible. This would apply particularly to the larger counties where adequate facilities for diagnosis and care of tuberculosis patients have been or should be developed. Pima County has excess beds for adults and excess beds for children and will not need, as in the past, any help from the State Sanatorium. We understand Maricopa County is planning to build a new county hospital which will probably provide 200 beds for tuberculosis patients. This will be accomplished and in use before a new state facility will be ready. It is hoped at that time Maricopa County will be able to care for its tuberculosis patients on a county basis. Among the smaller counties Gila, Yavapai, Pinal and Cochise provide suitable beds for the care of tuberculosis. This would leave eight of the smaller counties which do not have provision for care of tuberculosis patients and where there is need for a state facility, and

Whereas we do not feel that an emergency exists in the matter of constructing a new state tuberculosis sanitorium, and

Whereas the Board of Regents have a study in process at the present time which will undoubtedly find that a medical school should be established in Arizona and the site for such determined. A university medical school hospital would be established undoubtedly including an isolation wing with possibly fifty beds, which would take care of the tuberculosis problem for the smaller counties and even for some of the larger counties, and

Whereas between the present time and the development of such a university hospital isolation unit the present hospital at Tempe can well serve as it has during the last thirty years.

*Passed unanimously, regular monthly meeting, Jan. 10, 1961.

If it is felt that it would not be able to take care of all the patients, certainly beds may be found in other areas; the State Hospital for the Insane has 50 beds for tuberculosis, Pima County and other counties could help during the interim, and

Whereas we feel definitely that a large sum of state money should not be spent at the present time. Although it is an estimated project of $3,000,000 it would probably come nearer $4,000,000-$5,000,000. This money would be sorely needed for the development of a new medical school. An isolation unit in the university medical school hospital could certainly use the ancillary services and reduce the cost markedly in construction of such a unit,

Therefore, be it resolved that nothing be done toward building a new state facility for tuberculosis until the report of the medical study group is made on the establishment of a university medical school in which an isolation wing with beds for tuberculosis could be included with all the ancillary services provided by the university medical hospital with a great saving of money to the taxpayers of the State of Arizona.

Be it further resolved that an emergency does not exist in the matter of constructing a new state tuberculosis sanatorium.

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*Council on Drugs, J.A.M.A. 165:58 (Sept. 7) 1957.

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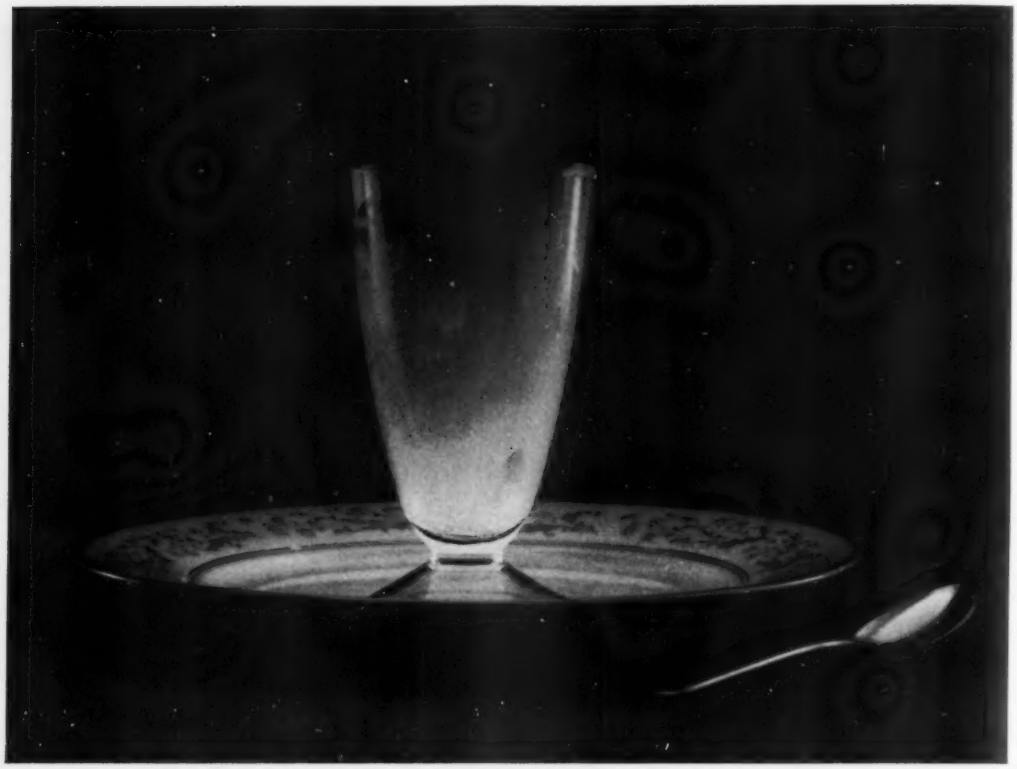

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Future Medical Meetings

The Arizona Medical Association 70th Annual Meeting

70TH ANNUAL MEETING

April 25 through 29, 1961

Safari Hotel – Scottsdale, Arizona

The faculty for our 1961 Scientific Session, to be held April 27, 28, and 29, 1961, is:

Dr. Herb Abrams, Associate Professor of Radiology, Stanford University School of Medicine

Dr. Evans Calkins, Chief of the Arthritis Study Unit, Harvard Medical School

Dr. Alfred M. Steinman, Director of Scientific Research, G. D. Searle & Co.

Dr. Mahlon Delp, Chairman of Medicine, University of Kansas Medical Center

Dr. H. Corwin Hinshaw, Clinical Professor of Medicine, Stanford University School of Medicine

Dr. Robert T. Manning, Associate in Medicine, University of Kansas Medical Center

Dr. J. H. Mulholland, Professor of Surgery, New York University School of Medicine

Dr. John W. Rebuck, Physician in Charge, Department of Hematology, Henry Ford Hospital

Leslie B. Smith, M.D.
President-Elect & Chairman
Scientific Assembly
Arizona Medical Association, Inc.

PROGRAM

Thursday, April 27, 1961

7:45 A.M. Breakfast: Panel Discussion – Recent Advances in Steroid Actions and Uses.
Dr. Harry Thompson–Moderator
Dr. Robert T. Manning–Panelist
Dr. Alfred M. Steinman–Panelist
Dr. Evan Calkins–Panelist
Dr. John W. Rebuck–Panelist
Dr. Sharrel K. Conner–Panelist

9:30 A.M. Intermission – Visit Exhibits.

10:30 A.M. Lung Cancer: A Challenge to the Medical Profession, Dr. H. Corwin Hinshaw, University of California School of Medicine, San Francisco, California.

10:30 A.M. Opening Session.
Call to Order – Dr. Lindsay Beaton, Tucson, Arizona.

Invocation
Rev. Herbert P. Landes
Valley Presbyterian Church
Scottsdale, Arizona

Memorial Service
Rev. Herbert P. Landes

Welcome
Maricopa County Medical Society
Dr. Robert A. Price, President

Response
President of Pima County Medical Society

Introduction of the Incoming President – Dr. Lindsay Beaton

Presidential Remarks
Dr. Leslie B. Smith

Presentation of Distinguished Guests

11:15 A.M. Physical Diagnosis in Cirrhosis of the Liver, Dr. Mahlon Delp, University of Kansas Medical Center, Kansas City, Kansas.

11:45 A.M. Management of Hepatic Coma, Dr. Robert T. Manning, University of Kansas Medical Center, Kansas City, Kansas.

12:15 P.M. Intermission – Visit Exhibits

12:30 P.M. Surgery of the Liver. Dr. John H. Mullholland, New York University College of Medicine, New York, New York.

1:15 P.M. Luncheons

PROGRAM

FRIDAY, APRIL 28, 1961

7:45 A.M. Breakfast: Panel Discussion – Edema and Ascites.

Dr. Mahlon Delp – Moderator
Dr. H. Corwin Hinshaw – Panelist
Dr. Herbert L. Abrams – Panelist
Dr. John H. Mulholland – Panelist
Dr. Robert T. Manning – Panelist
Dr. Alfred M. Steinman – Panelist

9:10 A.M. Intermission – Visit Exhibits.

9:30 A.M. Applications of Thoracic Aortography, Dr. Herbert L. Abrams, Stanford University School of Medicine, Palo Alto, California.

10:00 A.M. Current Research in the Connective Tissue Diseases, Dr. Evan Calkins, Massachusetts General Hospital, Boston, Massachusetts.

10:30 A.M. Serum Enzyme; Use and Abuse in Clinical Medicine, Dr. Robert T. Manning, University of Kansas Medical Center, Kansas City, Kansas.

11:00 A.M. Intermission – Visit Exhibits.

11:15 A.M. A New Qualitative Leukocytic Defect in Ulcerative Colitis, Dr. John W. Rebuck, Department of Laboratories, Henry Ford Hospital, Detroit, Michigan.

11:45 A.M. Annual Award Paper

12:15 P.M. Mechanism of Action and Use of Aldosterone-blocking Steroids in Edema, Dr. Alfred M. Steinman, G. D. Searle & Co., Chicago, Illinois.

1:00 P.M. Luncheons

PROGRAM

SATURDAY, APRIL 29, 1961

9:00 A.M. Combined Diuretic Therapy with Steroids in Resistant Patients, Dr. Alfred M. Steinman, G. D. Searle & Co., Chicago, Illinois.

9:30 A.M. Amyloidosis. A Search for the Answer by Chemical, Pathologic, Immunologic, Clinical and Geographic. Dr. Evan Calkins, Massachusetts General Hospital, Boston, Mass.

10:00 A.M. New Ultrastructural Diseases of Platelets as a Common Cause of Abnormal Bleeding, Dr. John W. Rebuck, Department of Laboratories, Henry Ford Hospital, Detroit, Michigan.

10:30 A.M. Roentgen Aspects of Pulmonary Hypertension and Increased Pulmonary Flow of Blood, Dr. Herbert T. Abrams, Stanford University School of Medicine, Palo Alto, California.

11:00 A.M. Visit Exhibits

11:15 A.M. Management of the Patient with Emphysema, Dr. H. Corwin Hinshaw, Stanford University School of Medicine, San Francisco, California.

11:45 A.M. Surgery of the Elderly, Dr. John H. Mulholland, New York University College of Medicine, New York, New York.

12:15 P.M. Luncheon

1:00 P.M. Golf Tournament — Prizes to be awarded at the 19th hole, following completion of the tournament.

LUNCHEONS

Arizona Arthritis and Rheumatism Assoc. — Dr. Evan Calkins, Massachusetts General Hospital, Boston, Mass. Question and Answer Period on Arthritis in Connective Tissue Disease.

Moderator — Dr. Donald F. Hill, Tucson, Arizona.

Arizona Chapter of The American College of Surgeons — Dr. David C. James, Chairman, Dr. John H. Mulholland, New York University College of Medicine.

Arizona Chapter of The American College of Chest Physicians — Dr. Andre J. Bruwer, Tucson, Arizona, Chairman. Bronchoscopy and Bronchography in Diagnosis of Pulmonary Diseases. Dr. H. Corwin Hinshaw, Stanford University School of Medicine, San Francisco, California. Radiologic Aspects of Operable Heart Disease. Dr. Herbert T. Abrams, Stanford University School of Medicine, Palo Alto, California.

Arizona Society of Pediatricians — Dr. Hugh C. Thompson, Tucson, Arizona, Chairman. Inborn Erros of Metabolism. Dr. Robert T. Manning, University of Kansas Medical Center, Kansas City, Kansas.

Arizona Society of Pathologists — Dr. James D. Barger, Phoenix, Arizona, Chairman. Effects of ATCH and Cortisone in Leukocytic Defenses. Dr. John W. Rebuck, Department of Laboratories, Henry Ford Hospital, Detroit, Michigan.

Section of Medicine — Dr. William J. Dunn, Phoenix, Arizona, Chairman. Physical Diagnostic Vignettes. Dr. Mahlon Delp, University of Kansas Medical Center, Kansas City, Kansas.

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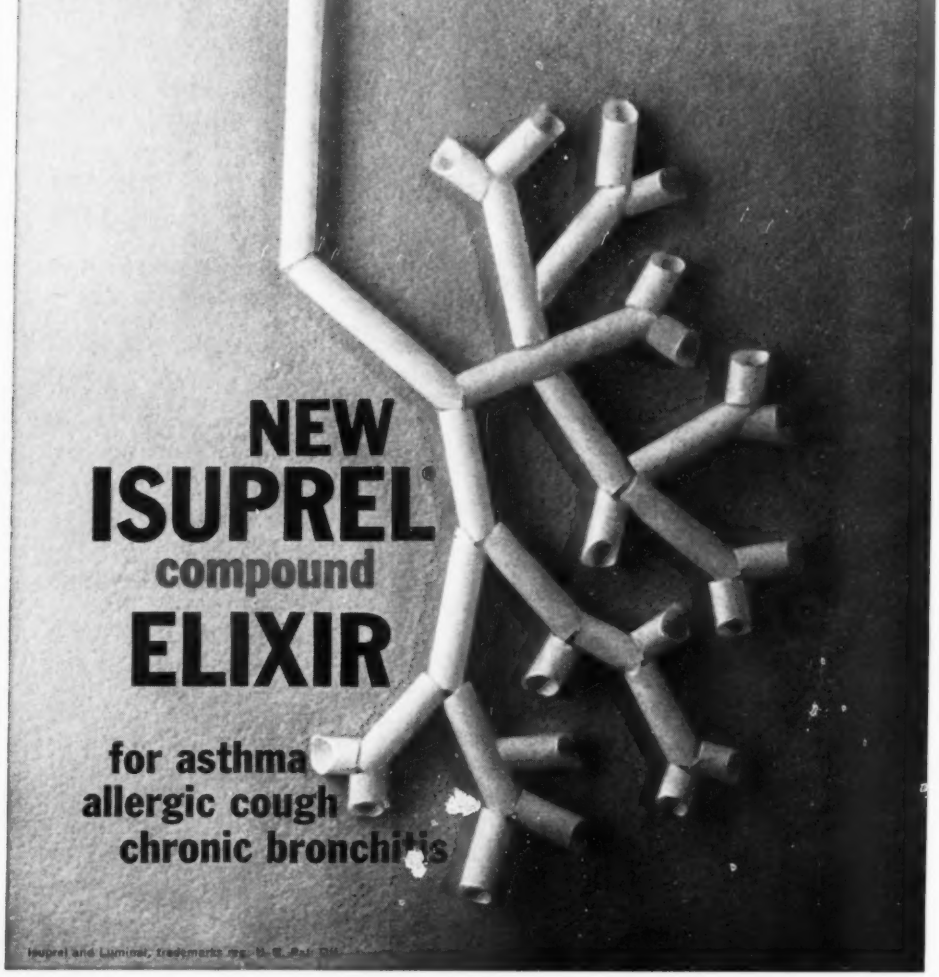

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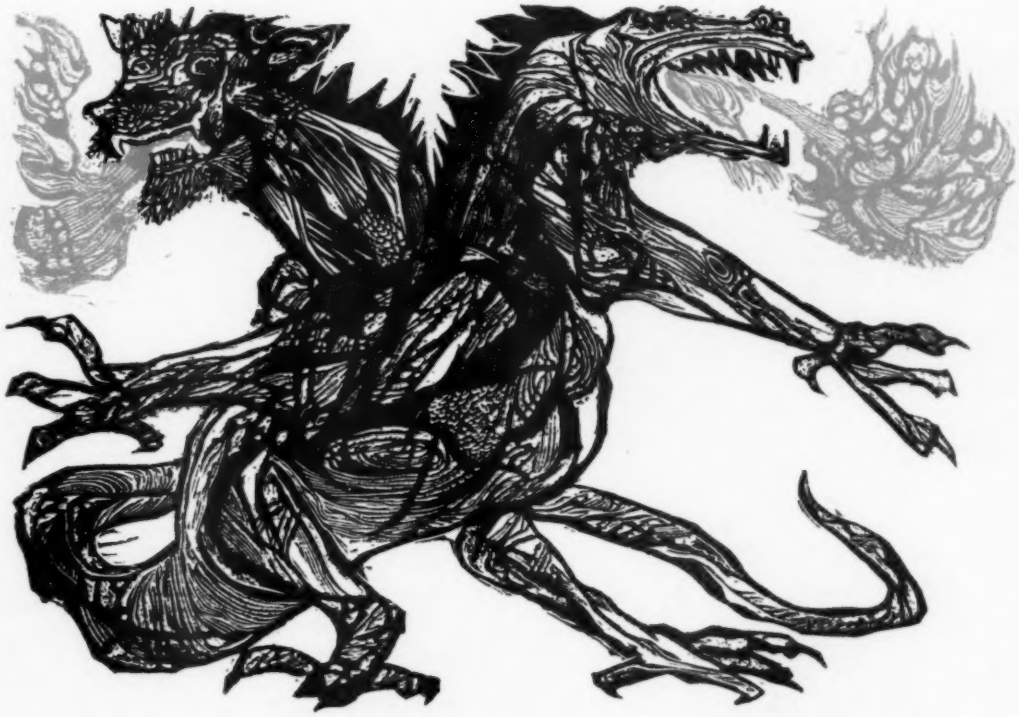

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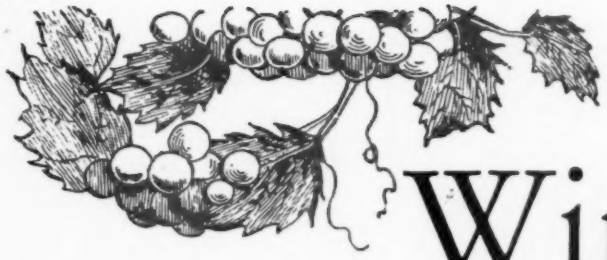

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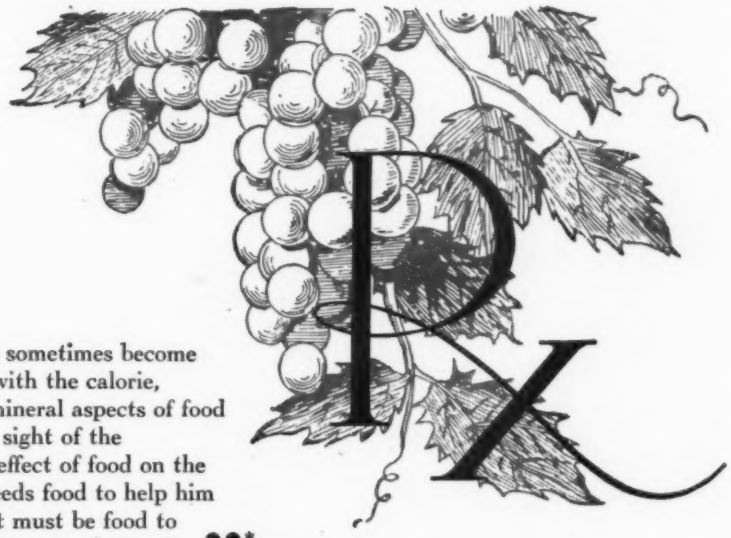

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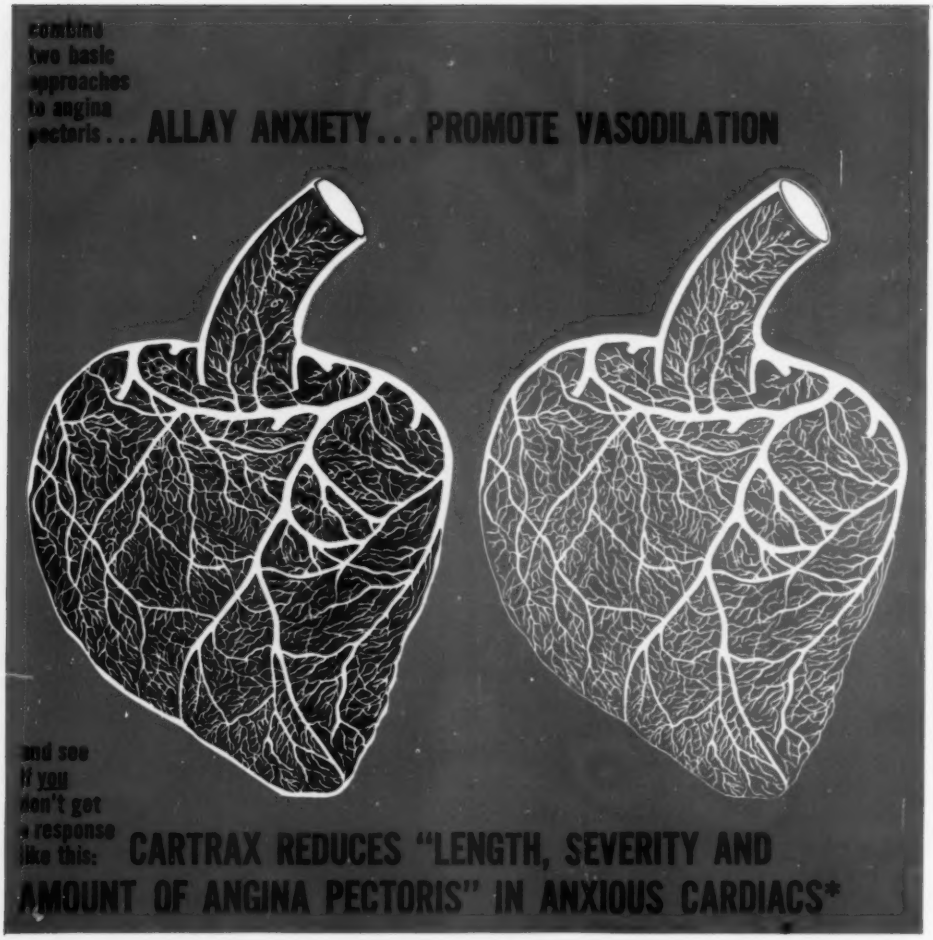
*Floore, F. B.: Wine is Fine for Hospital Cookery, Mod. Hosp. 94:134 (June) 1960.



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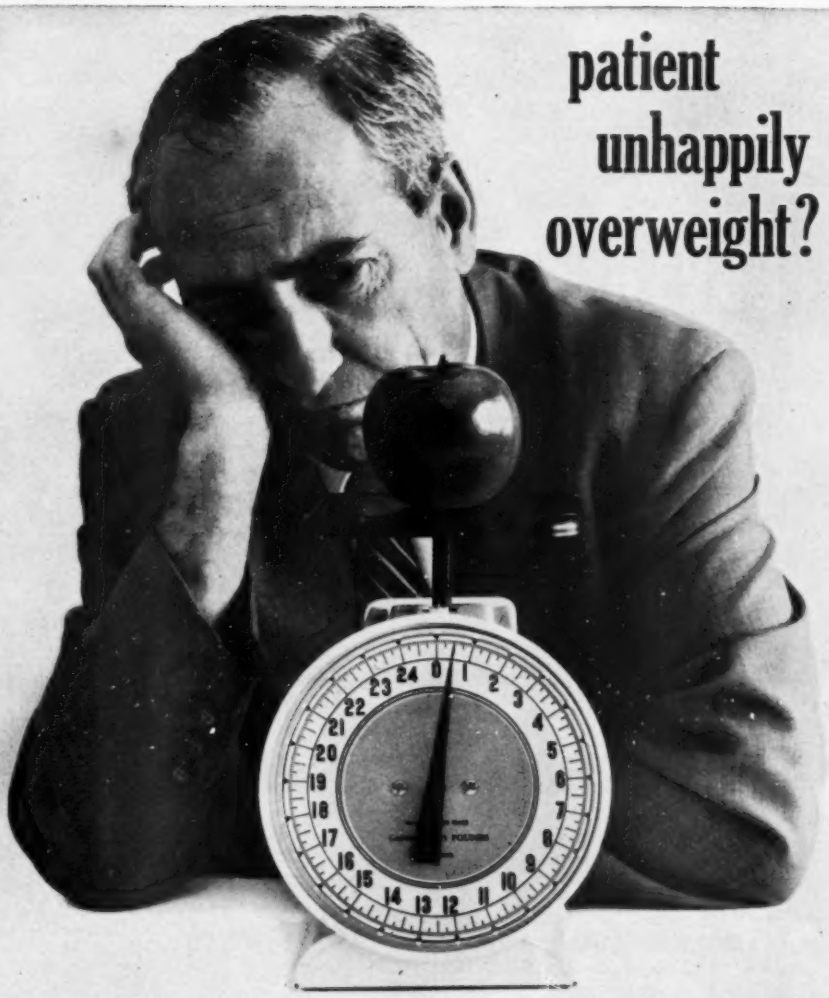

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[1] Douglas, H. S.: West. J. Surg. 59:238 (May) 1951.

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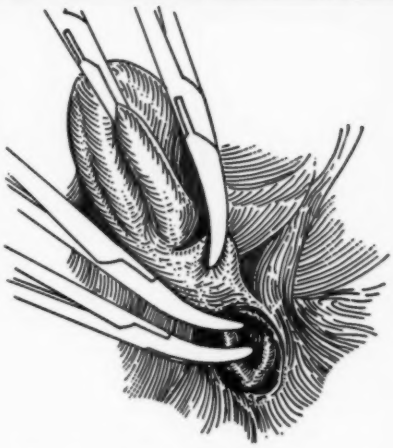

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